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The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

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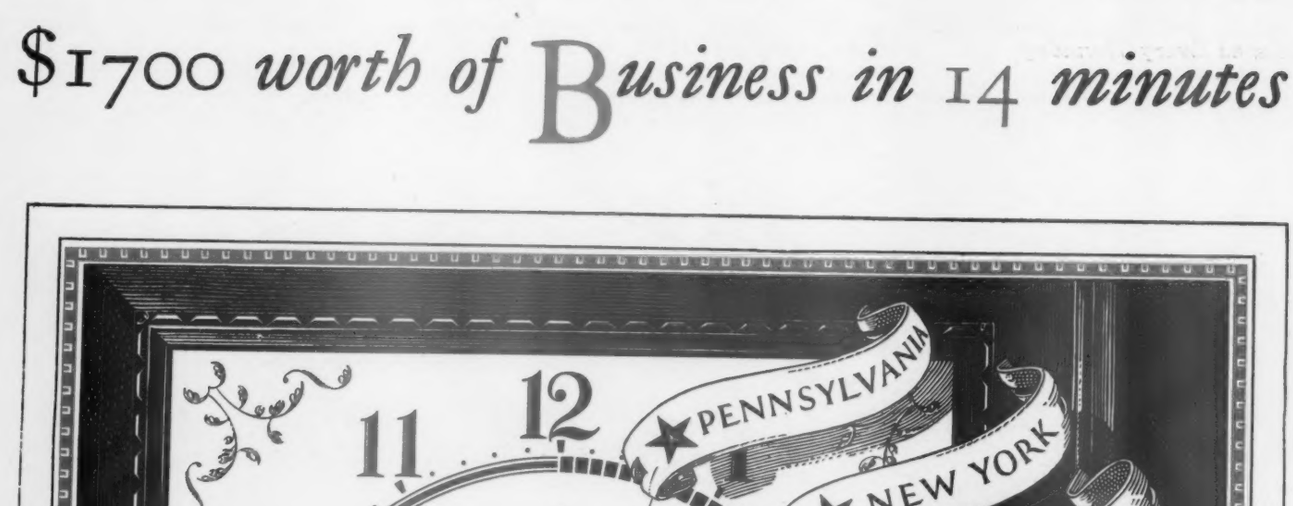

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PRODUCING REFINING MARKETING

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Crude Price Advance Expected Soon

Highest daily average estimated total production in 1927, week ended July 30, 2,567,105 bbls. Lowest in 1927, Jan. 22, 2,360,789 bbls.

Increasing Consumption With Greater Demand From Refiners Reflected in Stronger Crude and Refined Markets

By Andrew M. Rowley

Highest daily average estimated light oil production in 1927, week ended July 30, 2,102,385 bbls. Lowest in 1927, Jan. 1, 1,790,729 bbls.

Increasing belief that an advance in the posted prices of crude oil is not far off was evident among operators early this week. Steadily mounting consumption of gasoline with a resultant greater demand for crude on the part of refiners are factors making themselves felt and there seems to be but little doubt a continuation of this situation will warrant a readjustment of the price structure, especially as it affects the higher gravities and "sweet" oils.

Proration of production in the Hendricks Pool, Winkler County, Texas, necessitated both by lack of facilities for getting that crude to market and by the urgent need of producing the crude in such a manner as to minimize underground waste due to the encroachment of water, will aid the general situation to the extent of indicating more clearly to the industry what may be expected in the way of production and increased storage.

Efforts on the part of the industry in the Mid-Continent, California and elsewhere to restrain as far as possible unnecessary drilling at this time strengthen the feeling a steady improvement in the situation may be expected and that this better position will be maintained for a longer period. These efforts will go a long way towards preventing a wild orgy of drilling which might result in a return of the bad effects of overproduction. Instead of checkerboarding areas which give promise of being oil bearing, a number of companies now are quietly assembling large blocks of acreage, indicating a conservative drilling campaign when conditions improve and the development of the territory in an orderly manner.

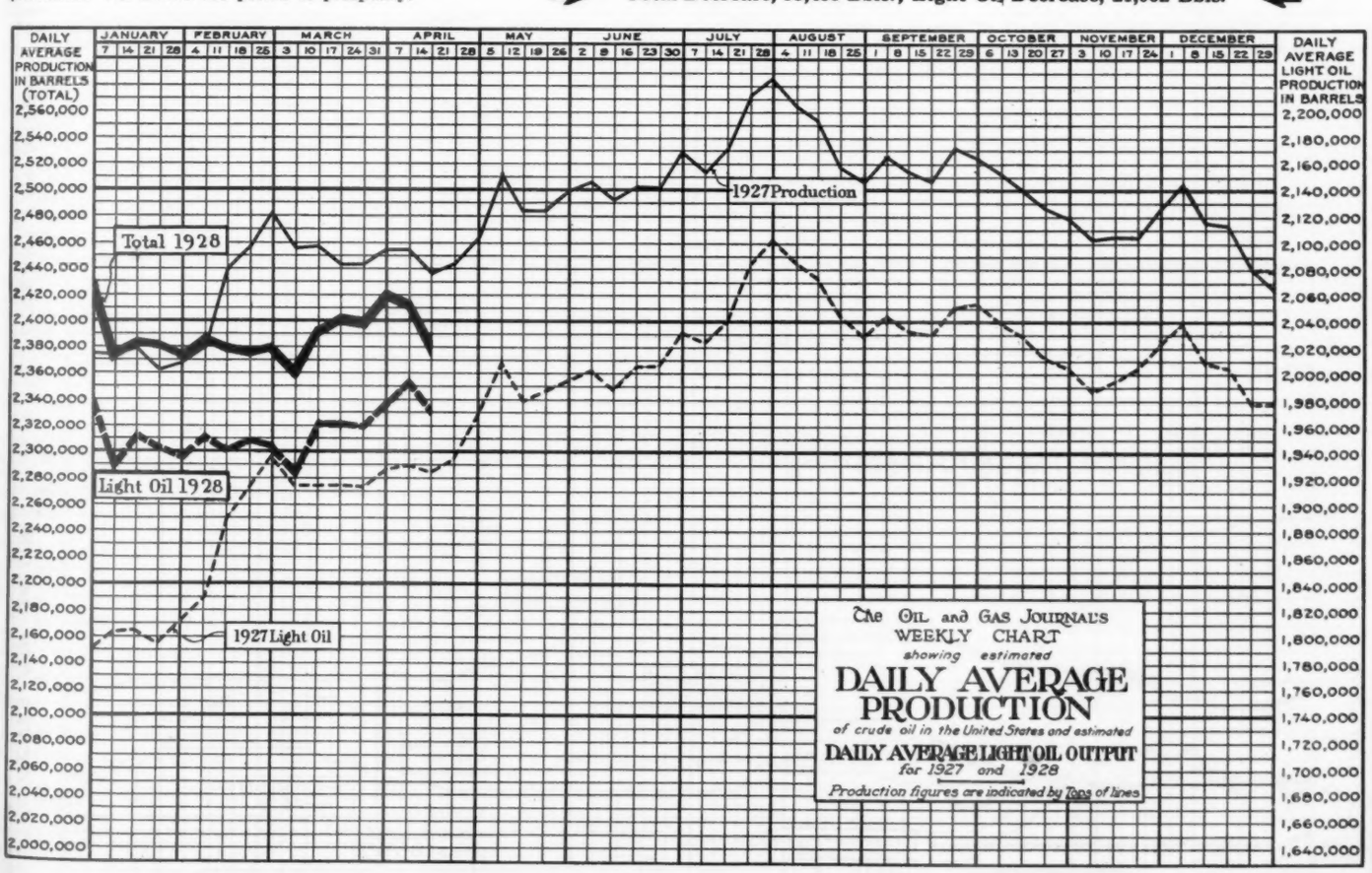
A material strengthening of the refined oil market is a reflection of general conditions at this time. The turn has been made towards better times for all branches of the oil business. Success of movements to hold crude oil production to market requirements will hasten the period of prosperity.

PRODUCTION IN THE UNITED STATES

Estimated Daily average production of light and heavy gravity oil in the United States for week ended April 14, and a comparison with the previous week follows:

	April 14		April 7	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	14,415	.....	14,540	.....
Burbank	38,565	.....	39,265	.....
Other Osage Fields	30,045	.....	30,280	.....
Cushing and Shamrock	20,885	.....	20,970	.....
Bristow	24,330	.....	24,425	.....
Seminole	283,185	.....	283,410	.....
Northern Miscellaneous	154,560	.....	156,420	.....
Southern Fields	58,980	.....	58,365	.....
Total Oklahoma	624,965	.....	627,675	.....
West Texas—				
Hendricks	183,332	.....	209,270	.....
Yates	48,106	.....	48,638	.....
Remainder	109,776	.....	113,900	.....
Total West Texas	341,214	.....	371,808	.....
North Louisiana	41,480	7,400	37,665	7,400
Arkansas	21,120	64,160	20,095	64,600
North Central Texas	130,569	.....	131,248	.....
Texas Panhandle	71,845	.....	72,905	.....
East Central Texas	23,341	.....	23,509	.....
Kansas	112,210	.....	114,330	.....
Total Mid-Continent Area	1,366,744	71,560	1,399,235	72,000
Gulf Coast	.....	121,724	.....	125,914
Southwest Texas	.....	27,105	.....	27,151
Eastern	104,000	.....	102,500	.....
Rocky Mountain Area	75,938	.....	77,009	.....
California—				
Santa Fe Springs	37,250	.....	37,250	.....
Long Beach	150,000	.....	139,000	.....
Torrance	2,000	16,500	2,000	17,000
Huntington Beach	56,000	.....	56,750	.....
Dominguez	12,250	.....	12,250	.....
Inglewood	18,000	11,500	18,000	11,500
Ventura Avenue	52,000	.....	51,750	.....
Seal Beach	39,500	.....	39,000	.....
Remainder of State	60,000	159,750	60,000	167,000
Total California	427,000	187,750	416,000	195,500
Total United States	1,973,682	408,139	1,994,744	420,565
Grand Total	2,381,821		2,415,309	

→ **Total Decrease, 33,488 Bbls.; Light Oil Decrease, 21,062 Bbls.** ←



Natural Gasoline Featuring Market

All Refinery Products Stronger Except Gas Oil and Fuel. Still Higher Prices Expected as Retail Market Improves

By W. T. Ziegenhain

The rapid advance in natural gasoline prices featured the Oklahoma market during the last week while practically all refinery products strengthened their position. Refinery gasolines moved to a new high for this year and the 58-60 U. S. Motor grade is better than one-quarter cent above the quotation one year ago. In addition, prices are not expected to stop here, but may easily reach 7 cents within the next week. Kerosene also had a rapid rise in price over the week, the general quotation being 5 cents with many refiners quoting materially higher prices for delivery over the latter part of April. Gas oil was stronger but its price has not advanced as rapidly as the lighter oils even though it has a higher potential value as cracking stock. This is the result of the free offering of gas oil and fuel by refiners outside Oklahoma, and the increased crude runs in Oklahoma.

Fuel oil did not share in the general advance nor did prices weaken any. Many refiners are out of the market because all their production is being applied on contracts made over the month For this reason, it is difficult to locate any great quantity of fuel for immediate delivery. However, at mid-western points where the West Texas fuel may be shipped at not too great a freight equalization this competition is being felt and over the balance of the month and during May fuel prices are not expected to advance, unless the present crude price schedule is revised upward. Lubricants moved much better and there was a tendency to eliminate all price concessions on the larger orders. This better movement and strengthening of prices did not apply to cylinder stocks and slightly lower prices were generally quoted. The export market has been supporting cylinder stocks in the past, but this business has not kept pace with the production. While no material recession in price is expected, the market is very weak. Wax inquiries continued to come in at a fair rate but much greater resistance is being evidenced as the prices are advanced.

REFINED MARKET BAROMETER

The refined oil market was very active during the past week and well supported the higher prices being quoted. Jobbers are increasing their purchases even above their needs to satisfy the better demand, for they anticipate a general increase in retail prices. Natural gasolines were materially stronger in both the Mid-Continent and in California and their rapid advance in price in the Mid-Continent featured the market. Kerosene was actively traded also and prices were generally higher. Fuel oil continued strong along the Eastern Seaboard but there was evidence of a freer offering of the material throughout the Mid-Continent as a result of West Texas fuel being moved into the north central states. Lubricants strengthened their position as the demand increased, but there were no price changes. There was considerable export buying on the Gulf Coast but prices were unchanged.

Mid-Continent.—Natural gasoline was not actively traded as manufacturers chose to hold their stocks and production for higher prices. The price is expected to go higher over the balance of the month. Refinery gasolines and kerosene advanced but fuel and gas oil were not quite so firmly quoted.

Atlantic Seaboard.—Gasoline consumption continued high and with a general tank wagon advance expected these higher prices are being well supported. Other products were in a stronger position including fuel oil.

Chicago.—Considerable trading was done in anticipation of an advance in the tank wagon and the desire on the part of jobbers to protect themselves on a continuation of the present trend of prices upward. Fuel oil was more freely offered and prices were lowered slightly.

Gulf Coast.—Several cargoes of the high viscosity red oils removed the great bulk of the spot material and while prices have not been advanced the market is in a good position to do so.

California.—All refinery products have had a good movement and prices were generally higher. As a result of the shutting in of part of the heavy oil production the fuel market has gained strength.

Pennsylvania.—Much improvement is noted in the general market as gasoline and kerosene prices were advanced. Fuel oil continues unchanged. Lubricants are being more actively traded but there has been no tendency to advance prices.

Part of General Advance

The advance in the Oklahoma refined oil prices is not a reflection of a local situation but is merely a part of the general advance throughout the country. For this reason, it is expected to withstand any reaction on the part of buyers, particularly as we enter the period of high consumption. Marketers have been carrying a very small margin of stocks for more than a year and as the retail price structure strengthens they are justified in increasing their stocks. This, coming at a time when a large increase is occurring in actual consumption, has allowed refiners to increase their prices despite the great volume of stocks being carried by the industry. The test of the market's strength will come when jobbers are fortified with a margin of stocks.

Some are sure a general advance in the retail prices will come very shortly and for that reason, too, independent buyers are not resisting refinery price advances. The slow strengthening of the retail prices has been in evidence for more than three months, but this has come about principally through the elimination of abnormally low prices in price-war centers. With the refinery market in a position to continue to advance there is a lesser tendency for price cutting to be practiced through the elimination of the wide spread between the refinery price and the retail price. It seems to be the plan of refiners having their own marketing fa-

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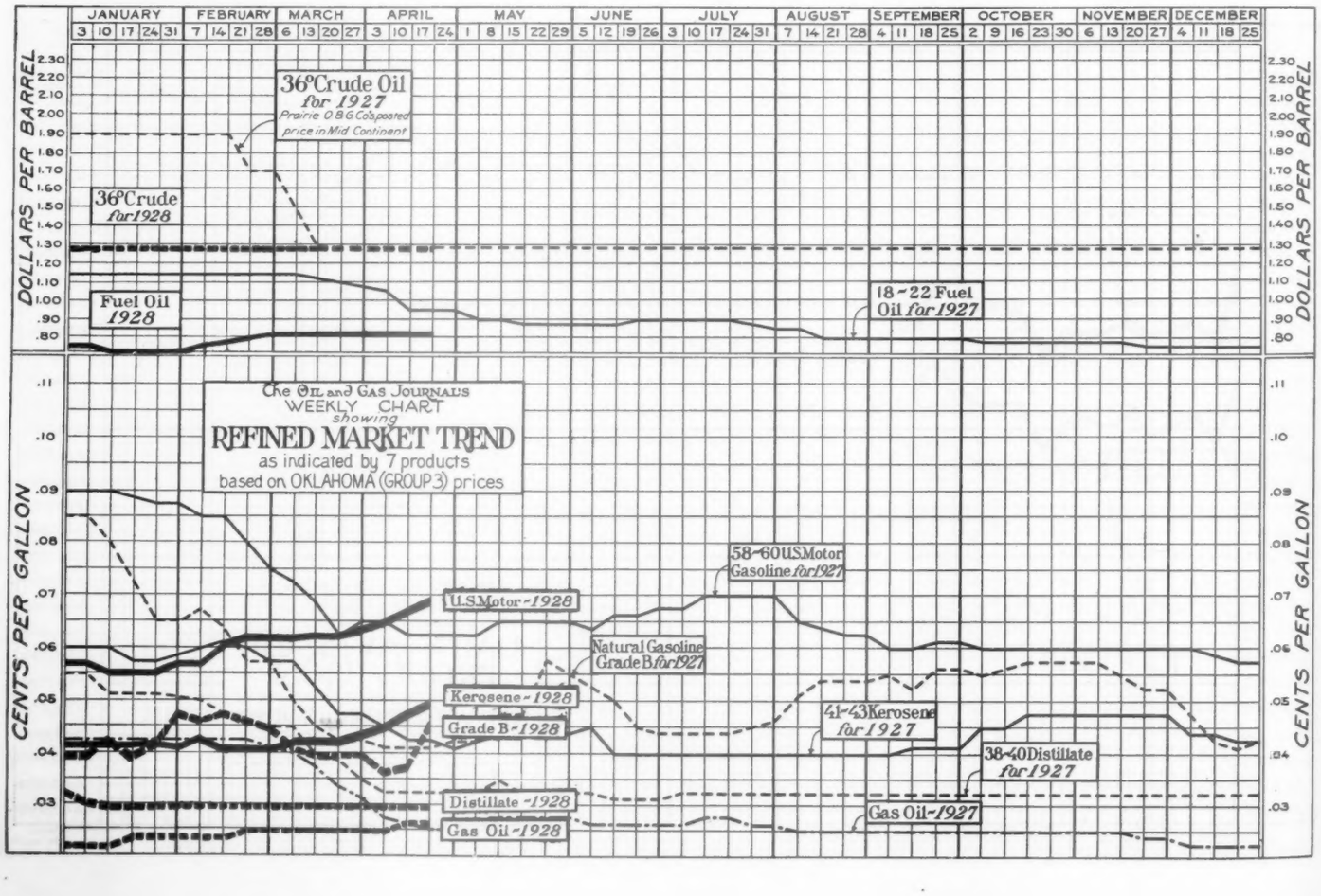

Proration Assured for Hendricks Pool

Immediate Action Urged at Meeting of Operators at Austin to Prevent Underground Wastage. Water Situation Serious

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

AUSTIN, Tex., Apr. 14.—Following an all-day session of Hendricks Pool operators and the Texas Railroad Commission at the state capitol here yesterday it was announced the commission would issue a proration order to curtail production in the big Winkler County pool within a few days.

It is probable the order will not recognize the existing crude contracts that for weeks formed the big barrier for the committee of operators seeking to get voluntary proration. If the order does recognize the contracts, most operators are of the opinion all operators will abide by the order without seriously contesting the power of the railroad commission.

In what manner proration will be brought about is a matter of conjecture. It was suggested during the meeting the field be produced under a proration plan similar to the original Yates Pool plan. That method would be to gauge each well in the pool for one or more hours and arrive at the potential production of each well in that manner. Each well would then be permitted to produce a fractional part of its potential production. The other plan suggested was to prorate the field under the 40-acre-unit plan and market outlet without recognizing contracts.

The Magnolia Co. and Cranfield & Reynolds' 3,000,000-bbl. contract is the one that has been the stumbling block in reaching a unanimous proration plan by the operators. Cranfill & Reynolds expressed their willingness to operate under a proration order if the field were prorated under a potential production plan. Both companies objected to the other plan.

The morning session of the meeting was devoted entirely to the discussion of the Winkler County situation while the afternoon session was devoted to the taking of testimony by the commission. The commission had submitted a tentative order for the operators in order that the committee might better arrive at a more satisfactory plan for the final order.

Urge Immediate Action

E. H. Moore, president of the Independent Oil & Gas Co., Tulsa, and one of the committee appointed to work out proration of Hendricks, urged immediate action. Mr. Moore reviewed briefly the action of the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association in its efforts to control wildcatting and urged the support of Texas in the plan. He then launched into the Winkler County situation.

"We understand this meeting will beget a real proration plan and not be a mere gesture. There should be absolute proration without any exceptions, present contracts to the contrary notwithstanding. The proration should be restricted to the market outlet. That would be fair in the main and the only possible unfairness would be the advantage which might come to some in taking oil from the pool they would not otherwise get."

D. C. Proctor, Fort Worth, representing the Gulf Production Co., reasserted that company would give wholehearted support to proration but declared the tentative proration order was indefinite because it did not definitely nominate a market outlet and did not suggest whether the commission would or would not recognize existing contracts.

Water Situation Serious

In discussing the proposal Mr. Proctor said: "This is a unique proposal because it calls for direct and compulsory enforcement action by the commission for the first time. Heretofore regulation has been brought about by agreement of operators but thus far operators in this matter have failed to agree and may never agree. This might hinder the cordial cooperation of operators and hinder it to that extent as experience must demonstrate.

"Meanwhile, nature is about to take care of the situation in Hendricks. On April 10 the production of the pool was 183,000 bbls. from 133 wells and 73 of those wells were making water."

C. C. Herndon of the Skelly Oil Co. declared Winkler County to be an enormous threat to the stability, life and prosperity of the industry. All interests are suffering alike, he said, and are being crucified on the same cross.

Continuing, he said: "If the commission makes rules to apply regardless of contracts, this is just, but, if operators are allowed under the same rule to take more than their prorata share then they are unjust and we will object to a rule of that kind. This commission has power to make equitable rules of proration if made with an unbending yardstick and has the powers to enforce them. Every person who made a contract in this state made them subject to the police powers of the commission. All producers must observe the rules alike to keep them valid as against invalidity through exceptions."

Commission Has Power

After citing several court rulings to support his contention that the commission has police power to enforce a proration plan in Hendricks, Mr. Herndon further said: "This commission has the power to tell Cranfill & Reynolds exactly how much oil they can produce, even though the amount may be less than the amount called for in their contract with the Magnolia company. The same police power also can restrict the purchasers to the amount allowed under a valid rule and they can not complain. To have a different situation would mean chaos indescribable and litigation interminable. The rule uniformly enforced would be sustained by the sentiment of the field."

Judge D. A. Richardson, general attorney for the Marland Oil Co., also supported the proration plan and said the commission has the power to prevent physical waste and added that it was the Commission's imperative duty to make an order to stop the underground waste in Hendricks. His contentions were likewise supported by court rulings. He added he did not believe the commission had the power to prevent an economic waste.

R. A. John, general attorney for The Texas Company was of the opinion the commission had powers to prevent physical waste and advocated a rule be made without exceptions. Judge R. L. Batts, attorney for the Gulf Production Co., and a regent for the Texas University, said the Commission is clothed with unusual powers which would enable it to make proration rules. However, he believed testimony should be taken as a preliminary to the adoption of the rules in order to meet possible statutory requirements.

Following a brief discussion of commission members it was decided to take testimony which consumed the afternoon.

Position Explained

Tom E. Cranfill of Cranfill & Reynolds objected to any rule which did not recognize contracts. In explaining the position of Cranfill & Reynolds, he said: "We are a small concern and entered the Winkler County Field by buying small scattered tracts. Our offer to exchange acreage in the pool to aid in conservation has been refused. We started drilling a mile north of production and brought in the biggest well in the field. We took our choice and now we are to be penalized. If men who have foresight and take their chances are to be penalized then we small operators will have to get out of the business.

"We are willing to prorate on the 40-acre basis after we fill our contracts. We can not pinch our big well down to this proposed basis but we will agree to prorate on potential production basis."

W. H. Francis, general attorney for the Magnolia Petroleum Co., opposed any rule that did not recognize contracts and intimated his company would contest a ruling that did not take contracts into consideration. He explained that one contract entered into by the Magnolia company and Church & Weekley would not allow the latter to receive royalty when the production of the lease went below 1,500 bbls. daily.

Dr. C. H. Wegemann, chief geologist for the Pan American Petroleum & Transport Co., was the first of the witnesses called. He declared there is an underground waste of oil in Hendricks because water is trapping considerable production. The wastage of gas and improper handling of wells is the cause of the waste, he declared.

Doctor Wegemann declared the wastage underground will continue unless the field is produced under more careful and proper methods. If the wells are properly handled there is no reason why the water intrusion should be so rapid, he said.

In estimating the wastage of gas pressure he said he had figures to show that 8,000,000,000 feet of gas had already been wasted and the present rate of waste is around 400,000,000 feet daily. Of this amount, 165,000,000 feet of gas is being wasted by wells making gas only.

Underground Wastage

Doctor Wegemann was kept on the stand a considerable length of time and was questioned closely concerning the best methods of preventing underground wastage.

I. G. Harmon of the Marland company testified that the unrestricted development of the field is causing a coning condition of many wells and is seriously cutting down the ultimate production of the field. He ventured the opinion that Hendricks may be another Panhandle in the respect that ultimate recovery estimates on the basis of initial production would fall far short unless the pool is properly handled. The Panhandle, he explained, indicated a high ultimate recovery but coning conditions cut the figure far below expectations. The same may happen in Hendricks, he said.

In explaining the water situation, he said encroachment was both bottom hole and edge water. He said he believed too much gas pressure is being wasted and it was his opinion the field should be produced with back pressure on wells in order to let the water table rise as uniformly as possible.

John R. Suman of the Humble Oil & Refining Co. also testified there was underground wastage but the trouble could be cured by orderly development of the field.

A. W. Peake, vice president of the Dixie company, said the aim of his company was to get the greatest ultimate recovery in Hendricks, but unrestricted wastage of gas energy and encroachment of water were both working against that aim. He said that orderly withdrawal with back pressure on the wells would minimize the loss of ultimate recovery while the condition would be aggravated by wide-open production.

E. G. Allen of the Roxana Petroleum Corp. was the last witness to testify to underground wastage and painted a graphic picture for the commission. He explained the Hendricks Pool was one floating on a great sea of water. Unrestricted drilling and production reduces pressure at certain points and then the water comes in either by coning or channeling. In some instances he estimated that as high as 50 per cent of the ultimate recovery would be trapped and never be recovered as a result. It was his opinion that close to 100 per cent recovery could be obtained by orderly drilling and production methods.

The session was adjourned following the suggestion of Frank T. Pickrell, Fort

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HIGH LIGHTS ON HENDRICKS POOL

Several important features were disclosed at the meeting of Hendricks Pool operators in Austin last Friday, among them the following:

U. deB. Daly of St. Louis, Mo., representing the Roxana Petroleum Corp., said the water situation in the Hendricks Pool was so serious that his company has wired for the best water experts employed by the Roxana Corp. in Mexican fields to come to study conditions in Hendricks. He said his company would gladly co-operate with other companies in studying the water problem and would file a report of its findings with the Railroad Commission upon completion of the water investigation.

The gas-oil ratio in some Hendricks Pool wells is 10,000 feet of gas to one barrel of oil, while in the Yates Field the gas-oil ratio in some wells is 150 feet of gas to 1 barrel of oil.

The Hendricks Pool may repeat the performance of the Panhandle in that a vast quantity of crude may be sealed off in the producing horizons by coning conditions.

One 80-acre lease in the south part of the pool was estimated to have an ultimate recovery of 25,000 barrels per acre but to date the recovery has been less than 10,000 barrels and four of the wells are expected to be in such a condition as to force plugging within the next four weeks. Water encroachment in those four wells has been rapid in recent weeks.

In excess of 8,000,000,000 feet of gas has been dissipated in the Hendricks Pool and 400,000,000 feet of gas is being wasted daily.

Water is showing in 73 of the 133 wells in the field.

Increasing Difficulties in Russian Field

Lack of Sufficient Funds Has Resulted in Curtailment of Operations in Grozneft Area. Decrease at Baku

Specially Contributed

In the Grozneft, Russia, fields, the capital expenditure, particularly for drilling, has undergone considerable cutting owing to insufficient funds. The drilling program on the exploited fields has been reduced, and instead of 90,750 meters as originally planned only 76,396 meters will be drilled. Explorational drilling has been reduced to 6,575 meters whereas in the fiscal year 1926-27, 7,909 meters were drilled. During the first quarter of the new year the decrease in prospecting has been much greater; of 23 rigs working on October 1, 1927, 15 have been stopped temporarily. No building on a large scale will be done on the properties in 1927-28; various work on the Boznesensky properties has been cancelled, chiefly the building of the electric distributing station. In all, the capital expenditures will be 57,500,000 roubles as against the first figure of 70,000,000 roubles.

Drilling Decrease in Baku

Notwithstanding the fact that the drilling program proposed by Azneft has been cut down by almost 30,000 meters, the program for the first quarter of the present year was actually not fulfilled by more than 8,000 meters. The decrease in January bordered upon a catastrophe. This continued throughout January and of the program for the first month of the second quarter only about 50 per cent was fulfilled.

Aside from lack of capital and credits the following reasons are advanced as contributing to the decreased drilling.

1. The compulsory introduction by the People's Commission of Labor for an obligatory 42-hour weekly rest for all categories of laborers working on three shifts and the refusal of the drilling department, owing to various technical difficulties, to introduce "nonstop" work, compelled Azneft from January 1, to institute a day's stoppage per week on practically all boring wells. As these stoppages normally necessitate additional work before and after each day's rest, the final result is that monthly work is reduced thereby by approximately six days.
2. The increasing number of holidays and the general fall of discipline brought about by various causes.
3. Insufficient qualified workmen for the increasing number of rotary rigs.
4. Climatic conditions, which considerably hamper the delivery and removal of instruments to wells.

January Exports from Russia

The quantity of oil products exported from Russia during January amounted to 170,000 tons (21.5 per cent more than in January, 1927) as follows:

	January 1928	January 1927
	(Tons)	
Kerosene	55,200	40,900
Gasoline	50,200	34,100
Lubricants	14,400	15,900
Oil fuel	50,900	49,500

All oil products, as compared with last year, show an increase, with the exception of lubricants.

Exports to the various countries were as follows:

	January 1928	January 1927
	(Tons)	
Germany	32,300	20,700
Italy	22,300	31,300
France	18,400	32,000
India	15,300	none
Egypt	17,600	14,400
Spain	14,700	none
Great Britain	14,900	17,800
Other countries	27,700	20,500

Exports to all countries have thus increased, with the exception of Italy, France and Great Britain.

Baku Production

The production from the Baku oil fields for February is given at 544,334 metric tons against 591,278 tons in January. There were 3,130 wells in exploitation during January, 9 less than in December.

Azneft has concluded a contract for 30 Diesel engines each engine to be of 300 horsepower with 170 to 187 revolutions per minute and delivery to be completed by May, 1929.

Drilling for January shows a big drop, only 13,821 meters having been drilled.

Grosny Production

The production for January, 1928, has again fallen, but whereas the decrease in December was attributed to a decline of output from gushers, in January the fall is general, as shown by the following figures:

	Dec., 1927	Jan., 1928
	(Tons)	
Gushers	192,216	171,656
Bailing, etc.	74,679	70,262
Pumping	64,447	59,079
Lake oil	386	248
	331,728	301,245

Some 479 wells were in exploitation in January, against 480 in December; of these 23 were spouting wells.

Drilling Operations

Some 116 wells were being drilled or deepened, and 22 were undergoing repairs during January. There were 3,012 meters drilled during the month, 1,856 meters by percussion and 1,156 meters by rotary rigs. Compared with December, there is a decrease in drilling of 224 meters.

The exports for January from Grosny were as follows:

	Tons
Gasoline	40,154
Kerosene	35,355
Motor oil	21,650
Fuel oil	61,684
Lubricating oil	2,140

Emba Production

The production for January has fallen as the result of frosts and storms. The figures are as follows:

	Tons
Dossor	15,006
Makat	2,447
	17,453

Drilling was being carried out in 21 wells during the month—3 at Dossor and 18 at Makat.

Batum Refineries

The building of refineries by Azneft has been brought to a standstill owing to snowstorms and severe frosts, and cannot be restarted until April. The workmen have been released for three weeks.

Notwithstanding severe frosts and continual snowstorms, the total amount of drilling per day at Baku remains steady at 600-800 meters. For the first week of March, over 4,000 meters have been drilled.

Oil in Gouria

Oil has been found in the village of Omiareti, (Gouria) at a depth of 282 meters, specific gravity 0.921. Prospecting work is to continue.

A report just received discloses further details of exports from Batum durring the first quarter. From this report it is gathered that the chief exporters of kerosene were the Standard Oil Co. of New York with 46,700 tons, the Vacuum Oil Co. with 38,100 tons, the Medway Oil Co. with 28,500 tons and the Turkish Monopoly with 11,200 tons.

The chief exporters of gasoline were: "Derunaft," 26,500 tons; Medway company, 6,200 tons; and R. O. P., 5,800 tons.

Azneft and the Baku Industry

During the first 14 days of March, Azneft drilled 9,165 meters against 6,790 meters drilled during the same period in February. The officials anticipate that the program of drilling for March will be fulfilled.

Azneft is completing the erection of two new refineries with a capacity of

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Competition Versus Conservation

If Principal Units Work Together Where They Can, Something May Be Accomplished Before It Is Too Late

By R. C. Holmes*
President, The Texas Corporation

"Competition is the life of trade," but competition can be so excessive and unreasonable as to be destructive of business. Is this not in reality the reason for the acknowledgment, inside and outside of the petroleum industry, that something is fundamentally wrong with it?

This industry is the largest enterprise, other than agriculture, in the United States. In providing a clean, efficient and convenient fuel, it has made possible the growth of the second largest of all manufacturing business—the automotive industry, which has contributed so substantially to the prosperity and happiness of the United States, and to a very considerable extent of many other sections of the world. The petroleum industry could not have grown to such gigantic proportions without the automotive industry. Nor could the automotive industry have grown to such a position of unchallenged leadership without the oil industry. The two great industries, both of basic importance because of their relation to transportation, go hand in hand. Both have achieved success through the projection of broad economic service to the public. Anything actually wrong with the oil industry is a matter of vital public concern.

In the last analysis men go into the oil business for profit. But American business has learned that "he earns best who serves best." And in providing this dependable, satisfactory fuel supply, the petroleum industry genuinely serves.

Evils of Competition

The evils of competition in this business appear to start in the unrestricted and unlimited competition for lands and leases, nearly all now entailing drilling obligations, either by contract or because of offset wells of others, or by pressure brought to bear by a multitude of divisional royalty owners insisting on development regardless of market value or supply; also in the extension, at times, of pipe lines and other transportation outlets in periods of overproduction, which gives further support and impetus to the already menacing condition. And this excessive competition and disregard for the condition of the whole industry continues through to the delivery to the consumer.

R. C. Holmes

Any oil company expecting to hold its market against legitimate and fair competition by reducing prices, either directly or indirectly, openly or secretly, or any company or individual who performs similarly in getting into the markets, would appear to lack the marketing instincts or ability of the barber or restauranteur who can get some business anywhere at standard rates and keep it in a reasonable quantity so long as his shop is clean and his service honest and right.

Waste of our natural resource—crude oil—is not confined to loss in storage, as pointed out by the American Petroleum Institute's Committee of Nine, but is in the unnecessary consumption as fuel for which coal and other fuels are available in unlimited quantities.

The crude production of the United States in 1927 was 894,435,000 bbls., and 344,533,000 bbls. of crude and residuum were used for steam fuel; 500,000,000 bbls. of crude oil would have produced the quantity of gasoline consumed had refineries all been equipped with present known methods of cracking.

Public Will Understand

It the importance of the conservation of our crude supply is put before the public in a frank, clear and convincing way, it should be willing to pay, as would be required, more for its gasoline, whereas it will not be willing to run an unnecessary and unwarranted risk of doing without.

It is altogether probable that if anything effective is accomplished in the way of conservation, it will come of the manufacture from crude oils of the maximum quantity of the products that are in greatest demand and fill the greatest need, and the avoidance of the production of other products of the crude that are in excess of the actual and necessary requirements.

Immunity from, or a reasonable application (or at least a uniform understanding and interpretation) of some of the questionable antitrust laws, no doubt would be helpful in restricting crude production, but it is doubted that this alone

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*In The Texaco Star.

Big Company Specializes on Touring

Standard of New York Maintains Touring Service to Encourage Greater Use of Cars. Pennsylvania Producers Endorse Plan

As an example of what can be done in the way of inducing motorists to do more touring and thereby increase the consumption of gasoline and motor oil, the Socony Touring Service, maintained by the Standard Oil Co. of New York, is a notable success.

"Good roads, good weather, good sport. Why not plan a tour?" is the enticing invitation supported by the offer of new road maps of New England and New York State to be had for the asking. Coupons are published addressed to the Touring Service indicating what maps are desired and telling which roads to take from various points.

The "Socony Standard," published by the company is a monthly inducement to get out on the highways and see some of the beauty spots and places of interest pictured in attractive photographs or to enjoy the pleasures of golfing, fishing and other sports that await the motorist when he knows where to go.

One article, "Ten Days in a Tenfold Land of Beauty," describes the joys of motoring through the mountains of New England. Another asks "How about an auto golf tour? How well would you score if you visited a new course every day?" An idyllic description is offered in "A Motor Honeymoon in New York's Paradise." The lure of the camera reaches out from two pages illustrating "Summer Days in Soconyland." For the epicure, "Dishes That Have Made Vermont Famous," is irresistible.

"Trout Are Running in Soconyland. Oil up your reel and get out your tackle —the hungry trout are waiting for you!" must have meant many more gallons of gasoline. "Breaking the Trail of the Breakers," following the coast from New York to Maine for beauty and local interest, offers a delightful itinerary for the vacation motorist. "History in the Hudson Valley," which still retains its Colonial beauty of early American days, must have had a wide appeal to the great motoring population in the Eastern states.

Most of these articles deal with summer vacations but the inducement to get out the car and go cannot fail to have been contagious in the case of many who found pleasure in week-end and evening trips to near-by places suggested on the longer tours.

No section of the country will admit that New York and New England have a monopoly of the natural beauty or historical interest. There is not a community where like enterprise in inviting motorists to take to the roads by showing them what they can see and telling them how to get there would not greatly increase the gallonage of the service stations along the way.

Newspapers Assisting

The Sunday newspapers are a standing evidence of the popular interest in highway news. Week after week at the opening of the motoring season the automobile sections feature pictures of near-by beauty spots, often, however, lacking the information which the motorist most needs, details about the roads and route, which the gasoline industry could find profit in supplying.

This interest extends to every community in the country. For example, in the Horton, Kans., Headlight Commercial recently Charles H. Browne, the editor, under the heading, "Observations of the Old Man," described a motoring trip he took over a week-end. He selected Excelsior Springs, Mo., as his objective and gave a column and more of detailed description of the roads, the places passed, the best bits of scenery, the places of historic interest, the whole article being an inspiration to his fellow motorists to resolve on a similar excursion.

The need for just that sort of information to stimulate a desire for these short tours is proved by the fact that the local editor felt justified in giving so much space to it. An intelligent advertising campaign for greater gallonage through increased use of the car would find hearty support in every newspaper office quick to recognize its value as news of interest to its readers.

Pennsylvanians Act

A. E. Booth, president of the Northwest Pennsylvania Oil Producers Association, during a visit to Tulsa, told of the keen interest with which the movement for greater gallonage has been received in the Eastern fields where the suggestion in The Oil and Gas Journal aroused determination for instant action. Producers were quick to see the value of the proposal, their experience with the Pennsylvania Grade Crude Association having shown them the power of cooperation. Refiners were, of course, directly interested and already arrangements have been made with one newspaper to carry each week a full page advertising some one trip in northwestern Pennsylvania, northeastern Ohio or southwestern New York as an aid to motorists in planning week-end trips. It is expected to extend this until the territory is completely covered since success of the initial effort is certain to be copied.

The point emphasized in discussion of the suggestion that made the greatest impression was that this sort of advertising actually created new gallonage where merely competitive advertising of products simply meant shifting existing consumption. It was felt also that the time to start such an advertising campaign is right now at the opening of the motoring season. Every day's delay will be so much time lost, so many gallons that might have been added to sales today that cannot be made up for by sales tomorrow.

To Double Night Travel

Another angle promising increased travel and greater consumption of gasoline is presented by the suggestion that 2 per cent of a state highway investment if spent for adequate illumination would double the night use of roads and largely increase the usefulness of highway systems, according to a statement in the "Transactions of the Illuminating Engineering Society."

"Two knotty traffic problems which become more insistent every year are highway congestion by day, and glare by night. Adequate highway lighting would be at once the practical and economical solution of both.

"Let us consider this from an economic standpoint. The automobile investment of the United States for 1926 is estimated at $10,000,000,000. It costs $20,000 to $50,000 dollars to build a mile of highway. To light it costs about $700 a year.

"On a basis of $35,000 a mile cost, for 2 per cent of the state highway investment spent in adequate highway lighting, it is conservative to estimate that the night use of roads would be doubled. Night traffic is now 18 per cent of the total, and doubling this would increase the present efficiency of the highway system by at least that percentage."

Oil Exposition to be Annual Affair

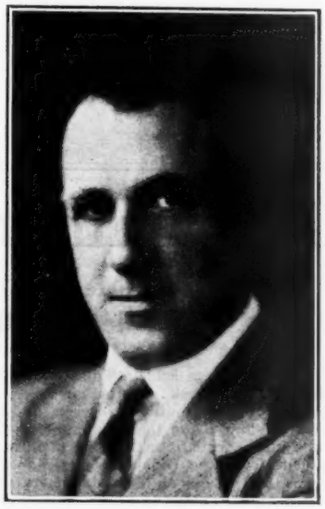
Directors Decide to Hold Show This Year October 20-29, Inclusive. Skelly Re-elected President, Gibbons Manager

The International Petroleum Exposition will be an annual event in Tulsa hereafter, in accordance with the decision reached last Saturday evening at a meeting of almost 50 members of the board of directors in the residence of W. G. Skelly, president of the exposition in Tulsa. Until this meeting of the directors it had not been determined whether there would be an exposition in 1928.

It was decided to hold the exposition this year from October 20 to 29, inclusive. Former expositions were held between September 20 and October 10 and heavy rains seriously interfered with the show and held down the attendance. A committee composed of A. W. Leonard, chairman; Frank Hinderliter, Earnest Nichols, Brook Gutelius and Barney Horrigan considered the matter of dates and decided upon the latter part of October, a period usually entirely free from rain in Tulsa and generally characterized by bright, warm weather.

W. G. Skelly, President

Mr. Skelly was elected to his third term as president of the exposition. J. Burr Gibson was re-elected manager and A. W. Leonard was chosen treasurer.



J. Burr Gibbons, General Manager

New members of the board of directors were elected as follows: J. Burr Gibbons, Joseph J. McGraw and Harry H. Rogers, of the Exchange National Bank; S. W. Campbell, president of the Tulsa Transfer & Storage Co.; O. T. Dawson, district manager of the National Supply Co., and J. H. Brooks, of the Republic Supply Co.

A committee to confer with supply companies regarding exhibits at the exposition was named as follows: R. M. Young, chairman; Waite Phillips, A. W. Leonard, W. G. Skelly and Clyde Alexander.

D. D. Wertzberger was made chairman of the grounds committee, with Alfred G. Heggen and Frank Hinderliter as the other members. They will have charge of properties and determine the need for new buildings and additional space for exhibits. The present plant of the exposition at the state fair grounds, is valued at $80,000. Invitations to manufacturers of all kinds of machinery used in the various branches of the oil industry will be sent out and a program designed to make the oil show worldwide in its scope was approved.

The meeting of the directors was held primarily to determine whether to hold the exhibitions annually or biennially. A few members suggested that the condition of the oil market was unfavorable for a show this year, but in the end the vote was unanimous for yearly exhibitions beginning this year.

NEW CONSOLIDATION OF 13 GAS COMPANIES

SHREVEPORT, La., Apr. 16.—Merger of 13 small companies operating in North Louisiana, Oklahoma and Texas into the Southwestern Gas Utilities Corp. has been effected in New York, according to information received here today. Three of the companies are Belchic & Laskey, Northwest Louisiana Gas Co. and Peoples Gas & Fuel Co., of Shreveport, Northwest Louisiana Gas Co. is the producing agency of the Belchic & Laskey interests and Peoples Gas & Fuel Co. is the distributing and marketing agency, serving numerous towns in Lincoln, Claiborne, Bienville and Webster Parishes.

Chief undertaking of the merger in this territory will be construction of the proposed 16-20-inch line from the Richland Parish Field through central Louisiana to Lecompte where it will split, one line serving numerous communities and industries in southwestern Louisiana between LeCompte and Lake Charles, and the other as far southeast as New Iberia and Houma. These two branches will in turn be connected by an east and west line serving towns along the Southern Pacific.

Coleman and Brown Counties Get Play

Several New Pools Have Been Discovered in Texas District Since First of Year. Consistent Gain in Activity

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 14.—Since about the first of 1928 there has been a tendency among many independent operators to turn away from the "plays" in West Texas proper which would cost in the neighborhood written in six figures, and direct their efforts to the shallow sweet oil districts. The territory embraced in the accompanying sketch map is one which is the scene of increasing activity.

Generally that area is included in the Ranger district which reached its height, so far as booms are concerned, several years ago during the booms of Ranger and Desdemona. Since then that area has been the scene of much activity with the resultant opening of many rich pools, and its development has been fairly steady.

However, as the cost of operations in far West Texas climbed and the price structure weakened, many independents turned to the shallow districts and the areas centering around Abilene, Coleman and Brownwood got more than their share of the operations. The low cost of operation in that district and the high returns in the event of oil discovery have proved a lure of merit.

At the present time eastern Coleman and western Brown County are getting the most activity from a leasing standpoint while the other counties each report increased activity.

New Pools Discovered

Since the opening of 1928 several pools have been discovered in this territory—none larger in area but several making good returns. Last week two pools were opened, one in Coleman and another in Brown.

Last year there were 855 wells drilled in Brown County and 278 were dry. The average depth of the wells drilled was 1,290 feet and the average initial production of the 1927 wells was 279 bbls. Eastland County reported 195 wells drilled within its boundaries of which 77 were dry. The average depths of the wells drilling in that county were 1,200, 2,300, 2,800 and 3,400 feet.

Coleman County has been making consistent gains in activity since the first of the year and the discoveries and showings found so far this year have stimulated interest in leasing activity. As a result of the 1928 discoveries, the city of Coleman has been benefited to the extent it has been made field headquarters for many supply companies and operators.

Last year's record for Coleman was not so impressive as that of many other counties. There were 95 wells drilled in that county and 75 were dry. The wells were drilled to an average depth of 1,975 feet. This year, however, gives promise of eclipsing the former year's record. Approximately 100 operations are numbered in that county at the present time.

Latest of the discoveries in Coleman was John Choate's No. 1 Stevens, about 3 miles southeast of Coleman City. This well is believed to be in the Fry sand at 2,100-03 feet. The well appears to be good for 75 bbls. and the oil tests around 42 gravity. Unfortunately for the operator an error was discovered in survey lines soon after the well started showing for a producer. It is located on the Roxana Petroleum Corp.'s lease adjoining the Choate lease.

Drilling in Taylor County

Taylor County was not the scene of much drilling last year, but what little drilling was reported from that county was for deep pay. The thirteen holes put down in that county during 1927 were drilled to an average depth of 3,200 feet with one hole being abandoned at 4,475 feet.

One shallow pool was discovered south of Abilene some time ago. Taylor, however is getting a more intensive lease play than it did in 1927 and is surrounded by counties reporting more activity.

Abilene has been district headquarters for many companies and is growing more in that direction. Leasing and drilling in counties surrounding Taylor and several farther westward is carried on from Abilene district offices. Hotel facilities there have made this town more popular to

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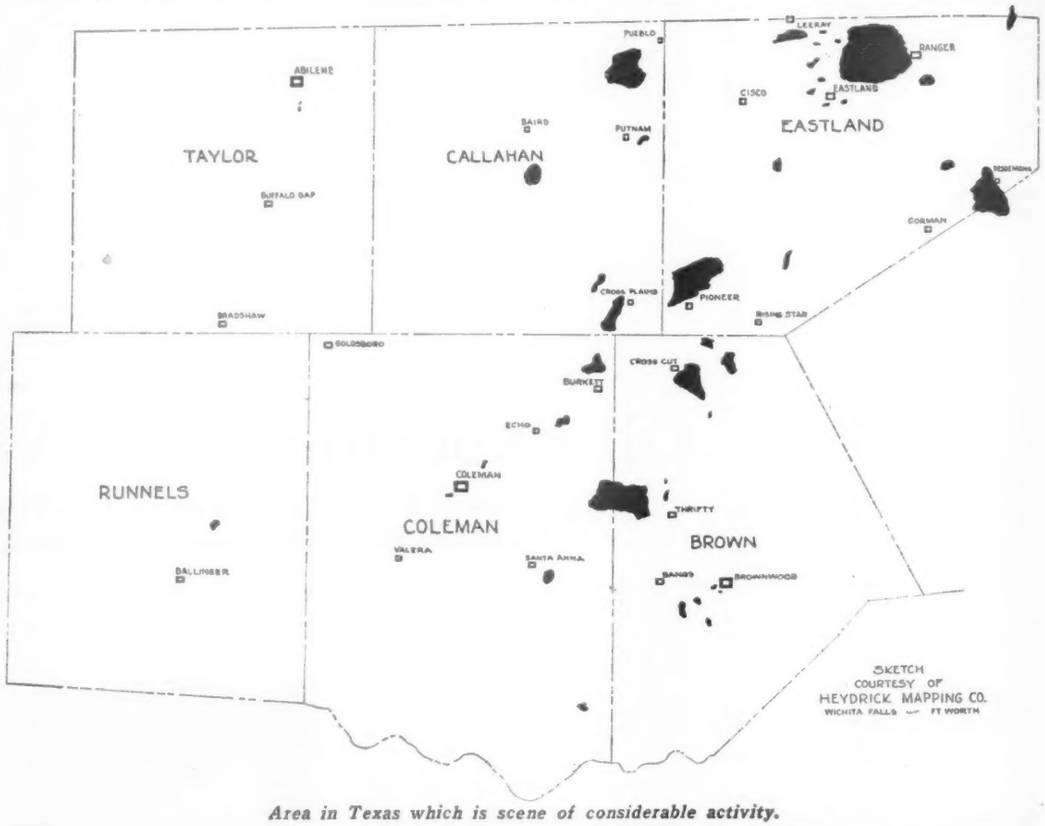


Area in Texas which is scene of considerable activity.

Recommend Further Curtailment

Meeting of Operators to Consider Wildcat Problem. Little River Agreement Extended 30 Days

Three meetings held in Tulsa on Tuesday of this week resulted in several changes in the shutdown agreements in the various pools of the Greater Seminole area, and a call for a meeting of all oil producers in the Oklahoma and Kansas fields to be held on Saturday morning, April 21, at Tulsa.

The most important changes in the Seminole shutdown agreements were that the Seminole producers' meeting on Tuesday afternoon voted to extend the present shutdown agreement in Little River and Township 7-6 for another 30 days, making it effective until June 15, instead of May 15 as formerly agreed. Another vote was taken to extend the present shutdown regulations on all outside regions excepting Little River and Township 7-6 from May 1 to June 1. This action automatically postpones the starting of a large number of wells for another 30-day period.

The Maud area around the Barnsdall Oil Co.'s No. 1 Fife in Section 14-8-5 is a region which has caused unlimited discussion, and after debating over the respective methods of procedure in this threatening region, the Seminole operators finally agreed to limit the drilling in this area to five wells which will be drilled on short-term leases. There was considerable discussion about the merits of drilling a series of test wells in the 8-5 country to establish the possibilities of the territory; but after a lengthy debate, the plan was abandoned in favor of starting only the wells which are necessitated by leases which expire soon. There were five wells permitted in this general region, and they are listed below in the statement of the Seminole operators.

Mid-Continent Meeting

The Mid-Continent Oil and Gas Association has a different problem on its hands, and the newly appointed advisory conservation committee has presented a plan of operation to the executive committee of the association. The executive committee approved the plan in principle, but decided to submit it to a meeting of all oil operators for approval in detail. The conservation committee accordingly has called a meeting of all oil producers in Oklahoma and Kansas, for Saturday morning, April 21, at 10 a. m. The meeting will be held on the fourth floor of the Tulsa Building and everyone identified with oil production in Oklahoma and Kansas is invited to attend regardless of membership in any producers organization. They will be invited to criticize, modify or approve the plan which the advisory committee has evolved.

The new plan of the conservation committee calls for the limitation of all unnecessary wildcat drilling activities, and requires that before any new wells may be started a permit must be obtained from an umpire in charge. The umpire, who will be charged with this responsibility, will be named at the Saturday meeting, and the advisory committee will be enlarged or changed in personnel according to the wishes of the majority of oil producers present.

In a statement issued Tuesday, E. B. Reeser, president of the Barnsdall Oil Co., who is chairman of the advisory conservation committee, said the committee was being swamped with requests to start new wells, and that in view of the number of requests he was anxious that everyone interested in this phase of the oil industry in the two states be present. The in-

(Continued on Page 157)

Temperature in World's Deepest Wells

Interesting Results of Investigations in Widely Separated Fields Where Drill Has Penetrated to Record Depths

C. E. Van Orstrand*

During the summer of 1917, after more than six years of continuous labor, the Peoples Natural Gas Co. of Pittsburgh, Pa., of which John G. Pew was president, abandoned its deep well, R. A. Geary, No. 770, at a depth of 7,248 feet, at that time the deepest well in the United States and the second deepest in the world, being surpassed only by the Czuchow well in Germany which in March, 1909, reached a total depth of 2,239.72 meters (7,348 feet).

On April 15, 1927, deep well No. 96

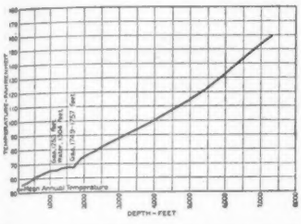
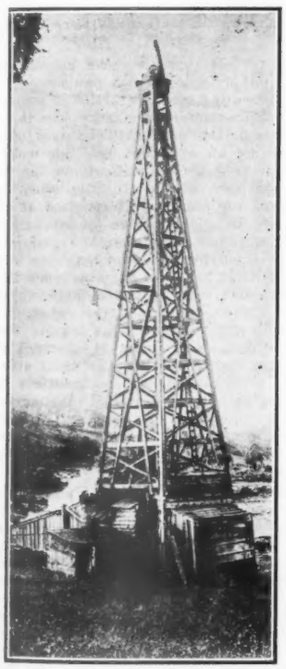


Figure 1—Depth-temperature curve of the Goff deep well.

Olinda, drilled near Olinda in the northern part of Orange County, California, by the Chanslor-Canfield Midway Oil Co. under the direction of President W. B. Storey, of Chicago, Ill., reached a total depth of 8,201 feet, the greatest depth



The Goff deep well. The fifth deepest well in the world and the first well in the United States to make a world record. Depth 7,386 feet.

ever reached in the crust of the earth. During the interval from the summer of 1917 when the Geary well was abandoned to the summer of 1927 when No. 96 Olinda reached its greatest depth, the five deepest wells in the world, today, were completed in the United States. In order of depth, the names of the wells are: Goff, Lake, Miley-Athens No. 6, Ligonier, and No. 96 Olinda. A brief history and description of these very interesting and remarkable wells is given in the following paragraphs, but because of its outstanding importance in the history of deep drilling in the United States, we shall begin with a brief sketch of the Geary well.

*Published by permission of the Director of the United States Geological Survey.

The Geary Deep Well

The Geary well is located in Washington County, Pennsylvania, about 5 miles northwest of McDonald and 16 miles west of Pittsburgh. It was drilled for the purpose of reaching the so-called Clinton oil and gas bearing zone which in Ohio extends from the southern border of Scioto County on the Ohio River to the northern border of Cuyahoga County on Lake Erie. The late Dr. I. C. White, state geologist of West Virginia,

The Lake deep well. The fourth deepest well in the world and the second well in the United States to make a world record. Depth 7,579 feet.

estimated that the depth to the Clinton zone at McDonald is somewhat in excess of 7,500 feet. The drill was within a few hundred feet of the desired goal when the casing, 4½ inches in diameter and 7,214 feet in length, collapsed near the bottom as the result of water pres-

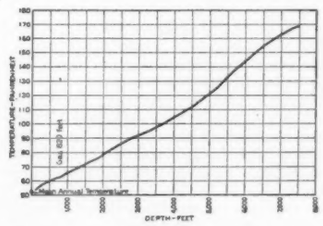


Figure 2—Depth-temperature curve of the Lake deep well.

sure, and enclosed the tools in such a manner that it was impossible to remove them.

Salt water from a depth of 6,260 feet rose to a height of 5,560 feet or 700 feet below the surface of the ground. The solids in the water consisted chiefly of calcium chloride and sodium chloride and were in the proportion 9,921.3 parts total solids to 100,000 parts solution. Prof. I. C. White believed that this highly concentrated brine had its origin in fossil sea water imprisoned since mid-Paleozoic time. Another bed of salt water between the levels of 6,520 and 6,530 feet was cased off at a depth of 7,214 feet.

The Goff Deep Well

April 19, 1916, marked the beginning of a second attempt to reach the horizon of the "Clinton" petroliferous sands east of the Ohio River. On that day, the Hope Natural Gas Co., of Pittsburgh, Pa., under the experienced leadership of John G. Pew, vice president, began the drilling of a deep well on the Martha O. Goff farm about 8 miles northeast from Clarksburg, Harrison County, West Virginia, and about 75 miles south of the location of the Geary well just a few miles west of Pittsburgh.

On March 14, 1918, after about 400 days of actual drilling, a total depth of 7,386 feet was reached, thus bringing to America for the first time, the credit of having the deepest well in the world.

In the well were 217 feet of 13-inch casing; 1,238 feet of 10-inch set in the Big lime; 2,307 feet of 8¼-inch casing set in the Bayard sand and 1,666 feet of 6-inch liner between the depths of 5,405 and 7,071 feet. Drilling was discontinued on account of the parting of the

Ligonier No. 1,842. The deepest producing gas well and the second deepest well in the world. Depth 7,756 feet.

cable leaving the tools and 2,000 feet of steel line in the hole.

The mouth of the well is at an elevation of 1,164 feet above sea level and 200 feet below the level of the Pittsburgh coal. The usual oil and gas bearing sands were penetrated ending with the Bayard

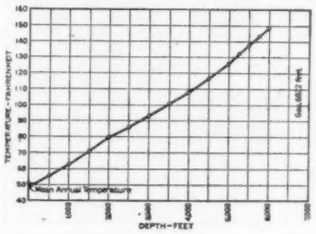


Figure 3—Depth-temperature curve of Ligonier deep well No. 1588.

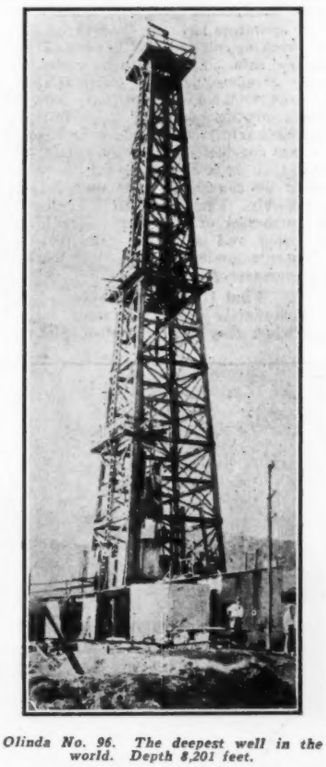
between the levels of 2,300 and 2,310 feet. From the latter point to the bottom of the well, representing a total thickness of 5,076 feet of rock, the strata were reported as slate, shell and lime with black sand between the depths of 6,676 and 6,680 feet; and hard sand from 3,480 to 3,505 feet, and from 7,069 to 7,071 feet. Water was found at a depth of 1,304 feet; gas at 1,253, 1,749 and 1,757 feet.

From a study of the fossils, Mr. Charles Butts, geologist, United States Geological Survey, identified the Marcellus shale of the New York geologic column between the levels of 7,187 and 7,355 feet which is in agreement with Prof. I. C. White's conclusion, based on stratigraphic determinations, that the well entered the "Corniferous" limestone at a depth of 7,363 feet. The Goff well is 138 feet deeper than the Geary well which begins at an elevation of 1,050 feet above sea level and 130 feet below the Pittsburgh coal, but on account of the great thickness of the upper Devonian beds, 5,623 feet, the Geary well penetrated the geologic column to a depth about 1,200 feet beyond the lowest point reached by the Goff well.

The Lake Deep Well

The I. H. Lake well is located near the axis of the Chestnut Ridge anticlinal, about 6½ miles southeast from Fairmont, Marion County, West Virginia, and approximately 11 miles in a northeasterly direction from the Goff well. The elevation is 1,201 feet, and the depth below the Pittsburgh coal is 850 feet.

Drilling commenced August 5, 1916, and on June 18, 1919, after approximately 385 days of actual drilling, the well reached a total depth of 7,579 feet, surpassing by 193 feet the depth of the



Olinda No. 96. The deepest well in the world. Depth 8,201 feet.

Goff well, its nearest predecessor in making a world record. During the earlier stages of drilling, the work was directed by John G. Pew, vice president of the Hope Natural Gas Co., but during the final stages of drilling, Mr. John B. Corrin, vice president of the Hope Natural Gas Co., was in charge.

A very remarkable feature of this well was the fact that only three short strings of casing were used; 310 feet of 10-inch; 630 feet of 8¼-inch set in the Big lime; and 2,118 feet of 6⅝-inch, set in limestone, leaving 5,461 feet of open hole.

(Continued on Page 152)

Prevention Rather Than Cure Is Aim

Sick and Accident Rates Reduced Through Adoption of Sanitary and Protective Regulations in Modern Oil-Field Camps

By Thomas F. Smiley

Virtually all the provisions now in force for the safety, health and medical care of oil field and refinery employes have been developed within the last decade, but the development has been notable. For many years prior to that the steel mills and other great manufacturing plants of the country had installed well-equipped hospitals, but conditions surrounding these plants were very different from those confronting the petroleum industry.

A big steel mill has thousands of men concentrated within a small area, making a hospital easily accessible for all of them, but an oil company's workmen often are scattered over miles of territory in drilling, producing or pipe line operations. This difference necessitated a different approach to the question of creating and maintaining the best possible conditions for employes with respect to their physical welfare, and oil companies recognized that they would do best to place their main emphasis upon preventive and protective measures, rather than upon remedial. An outstanding result of their efforts is that sick rates have been reduced to a startling degree.

H. C. Miller, engineer in the Bureau of Mines, Department of Commerce, in a paper on "Safe Practices at Oil Derricks," says of the progress of the safety movement: "Safety in the oils fields has made remarkable progress, mainly because operators have led the way by making working places and hazardous machinery safe. The safety movement is highly developed in those states (California and Oklahoma) that have enacted laws requiring operators to install certain mechanical safeguards over hazards that are considered especially unsafe. The laws that have been passed, however, should be considered minimum requirements only. They are merely guides for the furthering of the safety work in the oil fields and are not mandatory requirements aiming to intimidate workers and increase operating costs.

Find It Good Business

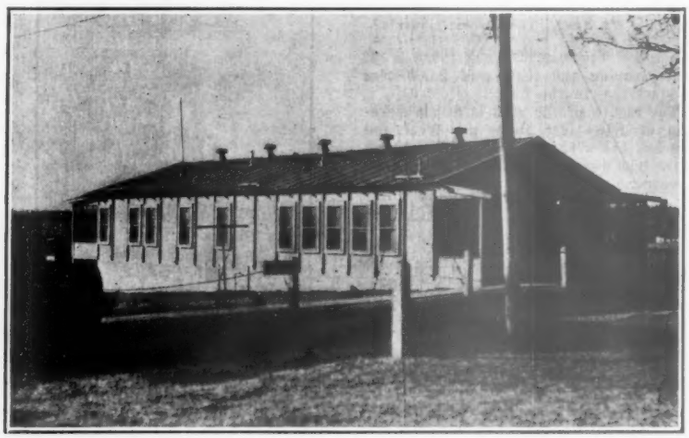
"Fortunately many operators do not stop when they have complied with the requirements of these laws. Many install safeguards that are not called for in the orders because they have found it good business to safeguard in every way possible their employes from injury. It is regrettable, however, that there are still some operators, especially in those states that have not enacted safety orders for the petroleum industry, who are not alive to the need of safety in their organizations. Safety is essential to the successful conduct of any business, and especially to the petroleum industry, because much of the work is hazardous. Safety pays large dividends to employes and their families, chiefly in the form of less suffering and loss of income. To the operator safety measures bring a reduction in unit production cost."

Oil companies in the Standard group have been pioneers in the installation of mechanical safeguards and first-aid stations and the adoption of sanitary and other regulations designed to prevent rather than to cure. Other major companies have kept step.

The Carter Oil Co., the producing subsidiary of the Standard Oil Co. of New Jersey in the Mid-Continent territory, in 1919 employed a medical director and assigned to him the task of organizing medical, sanitary and safety supervision over employes. Since 1920 this office has been held by Dr. W. F. McAnally, who conducts his work from the Tulsa, Okla., offices of the company. Other major oil companies, within the Standard group and outside of it, have proceeded along similar lines, but the Carter company's activities are fairly illustrative of all those companies that have been in the forefront in this field.

Model Field Hospital

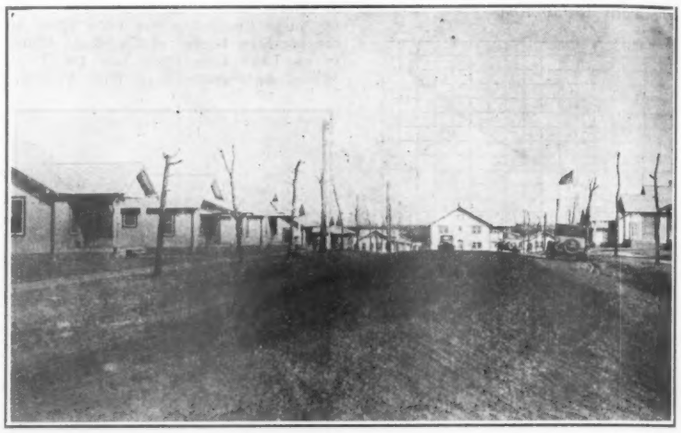
The company conducts a 10-room hospital in the Seminole Field of Oklahoma that is regarded as a model of its kind. The structure is 66 by 29 feet and one-story, with screened porches at front and rear and all 26 windows screened. It contains an office for the resident physician in charge, surgical laboratory, dark room, waiting room, nurses' room, two private rooms for patients, each containing two beds, and a ward room containing six beds. The surgical laboratory contains an operating table, sterilizer, X-ray machine and a full complement of surgical instruments, etc. A graduate trained nurse is in attendance all the time. The building is made with standard wood and beaver board panels, bolted together. When there no longer is need for the hospital these panels can be taken apart and reassembled either for another hospital in a different field or for buildings of wholly different character.



This field hospital of the Carter Oil Co. in the Seminole district is provided with modern surgical and medical equipment.

Disability and deformity are prevented by the prompt surgical attention which this hospital makes possible for men injured in accidents in the Seminole Field. Even life may be saved when minutes are precious, as in cases where artificial respiration is imperative. Prompt attention not only minimizes the danger to the injured employe, but it saves the time that otherwise would have to be given by some other man in taking him to a distant hospital—often the foreman himself, since he is likely to be the only one having an automobile available.

In areas where the number of men employed does not justify maintenance of a hospital, first-aid stations sometimes are established. In such fields and in those where employes are too scattered to warrant even first-aid stations, the Carter Oil Co. and other similar companies arrange with the nearest competent physician to serve in the capacity of company doctor. In case of injury by accident the lease foreman or some other employe takes the injured man to this doctor as quickly as possible. Lease foremen must report every accident that results in an injury requiring medical attention.



This view of a street in the Indian Territory Illuminating Oil Co.'s model camp in the Seminole Field suggests the care and cleanliness with which it is maintained.

Taking Advanced Ground

It will be seen that while oil companies cannot give hospitalization the place it has in the steel industry for instance, owing to important and unavoidable differences in employment conditions, nevertheless the oil companies are taking just as advanced ground as is possible under existing circumstances.

No other industry perhaps takes such thorough and painstaking preventive and protective measures as those adopted by the Carter Oil Co. and other leading oil companies in the last 10 years.

To begin with, an applicant for regular work must submit to a rigid physical examination, not unlike that to which applicants for life insurance undergo. The result of this examination is recorded on blanks printed for the purpose. It covers the applicant's health history and his condition with reference to sight, hearing, respiration, glands, alimentary system, heart, etc.

At first prospective employes opposed this procedure, declaring that a man's physical condition was his private affair, but within a short time opposition faded as it was recognized that the examination was attended by marked benefits both to the subject himself and to his fellows. It was realized that a man with defective vision or hearing or a weak heart might perform some kinds of work quite satisfactorily, but that in certain other jobs he would be a positive menace to fellow workmen besides needlessly inviting personal hazards. Furthermore, the examination may disclose some condition which, thus early discovered, may be corrected, but which might prove serious if allowed to go on unchecked.

Inoculations Given Free

Annual re-examinations are offered to Carter workmen free of charge, but they are not made mandatory. Recognizing the advantages of these re-examinations, many employes avail themselves of them. All employes and the members of their families receive typhoid and smallpox inoculations without cost. It might be mentioned in this connection that except for these physical examinations and the inoculations the workmen pay for any medical treatment, the workmen thus being made to feel that they are not in any sense put on a level with paupers.

Commenting on the practice of subjecting applicants for permanent jobs to examination, Doctor McAnnally said: "In examining an applicant both his mental and his physical qualifications for the position are considered. Too often the physical examination, if required at all, consists in picking men of apparently good physique for manual labor and smaller men for positions requiring little strength. It has been our experience that almost invariably it is the large, apparently healthy and robust type, rather than the thin and wiry one, that is more often able to produce as a manual laborer. Then it often is found that the thin, active type, generally picked for positions requiring little or no physical exertion and rather more mentality, is very deficient in his mental reactions and is only suited for manual labor that is almost automatic.

"A misplaced employe of either type is never a satisfied employe and he never will produce to his greatest extent either for himself or for his employer. Automatic machinery has made it possible theoretically for all workmen to produce at the same rate, but in actual practice there is often 50 to 75 per cent difference in the performance of various men handling such machinery. The fitting of machines to the work they are to perform has gone far in advance of the fitting of the man to the machine he is to operate.

Misplaced Workmen Costly

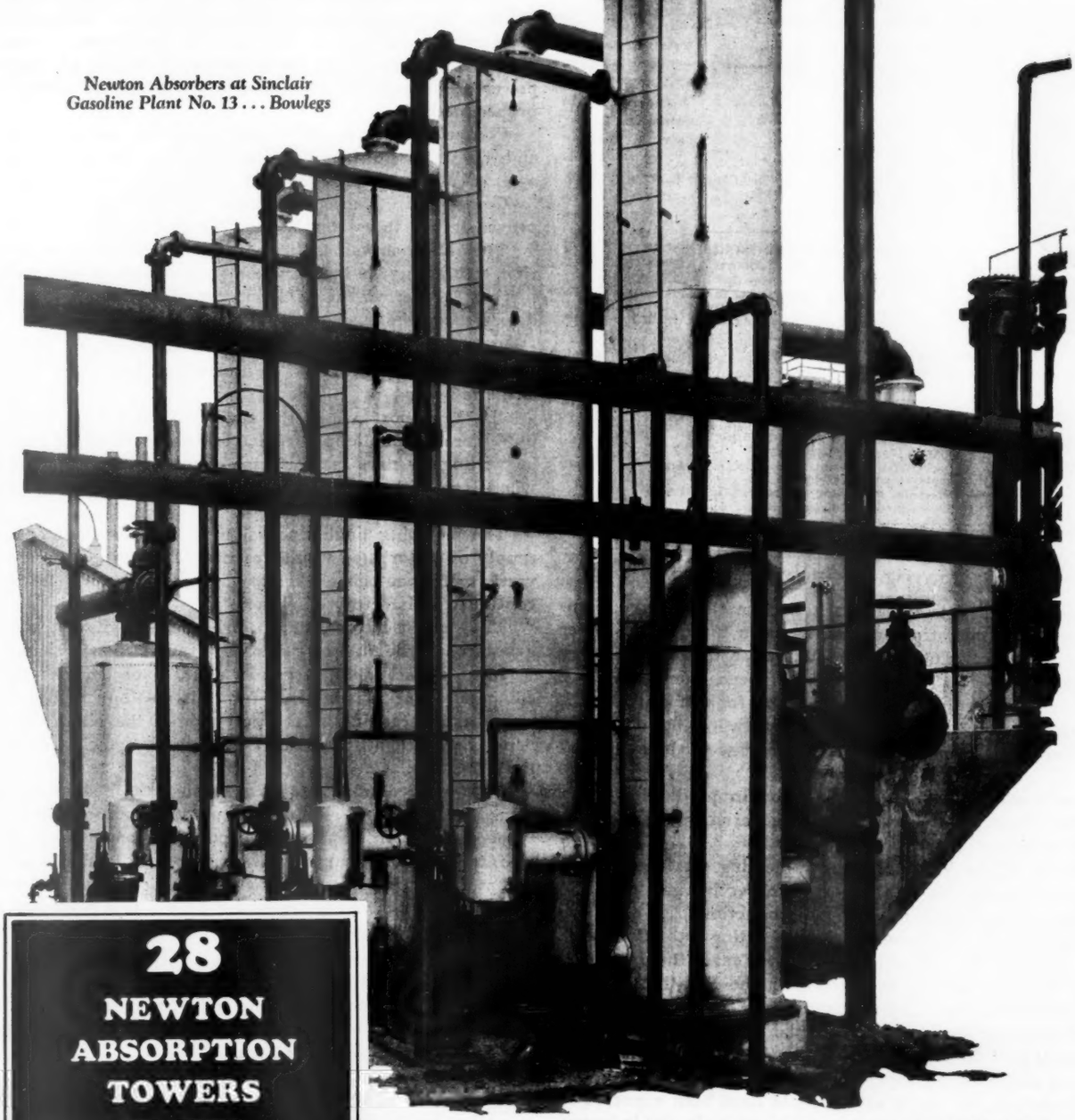
"This type of misplaced workman has a tendency to shift from one job to another. This results in increased cost to the employer and a lack of loyalty and interest on the part of the employe. On the other hand the man who is fitted mentally and physically for the job he holds is a loyal and satisfied employe, and he produces more for himself and for his employer.

"Preliminary examination of all applicants accomplishes several things. It greatly decreases the labor turnover, re-

(Continued on Page 106)

Newton Absorbers

Newton Absorbers at Sinclair Gasoline Plant No. 13 . . . Bowlegs



28 NEWTON ABSORPTION TOWERS IN THE SINCLAIR OIL and GAS CO.'S PLANTS

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and the

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MEMBER AUDIT BUREAU OF CIRCULATIONS

TAUGHT BY EXPERIENCE

Experience, they say, is a dear teacher. The oil industry learning the lesson of co-operation and conservation through the bitter consequences of overproduction has found it so but who will say the knowledge thus dearly gained has not been worth the cost.

The industry is learning how to co-operate for self control and, to the surprise of many, is finding that conservation, besides being of national benefit, is actually of direct advantage to the oil industry itself.

It is now seen that reckless competition in production is an injury to the industry as well as inviting governmental action for the protection of our natural resources.

The keynote of the Winkler County meeting was the general plea for orderly production as a means of conserving gas, checking the water hazard and increasing ultimate production.

Following the Seminole agreement, the shutting in of California wells and the plans for proration in West Texas, the concerted effort being made to regulate wildcatting in the Mid-Continent in periods of overproduction and the coming together of operators, as in Cotton Valley, for the most efficient plan of operation and conservation, show how deeply impressed the whole industry has been by the lessons taught by the experience of 1927.

No academic plea for conservation could have been expected to make such an impression or to produce such results in any industry. Conservation urged as a provision against problematical shortage at some indefinite period in the future seemed an abstraction. But conservation as a matter of immediate necessity was a practical question.

Previous periods of overproduction had been of comparatively brief duration. They were soon forgotten, even the great flood of 1923. But the overproduction of 1927, with so much oil in sight in California and West Texas, to say nothing of Venezuela and Colombia, gave oil men time to think and to act.

The industry stopped looking at overproduction as something that just happened and began studying why it happened.

It was found that excessive competition was the cause and naturally that there was no hope for cure or remedy to be found in competition. Logically, co-operation was the alternative to competition but it had never been tried by the oil industry although successful in other industries.

The Seminole agreement demonstrated its effectiveness. A situation going from bad to worse was checked.

Observing that result men began to understand as never before that overproduction with its consequence of general depression throughout the industry could be averted by precautionary co-operation.

It had checked the progress of the disease at Seminole. It could, if taken in time, prevent it spreading in West Texas or elsewhere.

Moreover, carried to its practical conclusion, it could assure orderly production with the fullest conservation of the propelling power of gas and the protection of wells against damage from improper methods.

Conservation in practice meant scientific control of production and the greatest ultimate recovery while at the same time guarding against renewed overproduction that would prolong depression.

Co-operation, like conservation, at first urged as an ideal, has proved its worth as sternly practical and of immediate advantage.

The public, as well as the industry, will be benefited by co-operation, stabilizing the industry and its products at a fair value, eliminating the periods of wild fluctuation which have so frequently disorganized the business.

This fact was brought out by President R. C. Holmes in his article on Competition vs. Conservation, published in this issue, when he says:

"If the importance of the conservation of our crude supply is put before the public in a frank, clear and convincing way, it should be willing to pay, as would be required, more for its gasoline, whereas it will not be willing to run an unnecessary and unwarranted risk of doing without."

The motoring public, accustomed to a constant and unfailing supply of motor fuel, would resent a lessening of that convenience vastly more than being asked to pay a fair price which would assure continued satisfactory service.

The immense stocks in storage and the known reserves are a guarantee to the public against shortage or runaway markets.

Not the least important effect of the experience of 1927 and the co-operation of the industry for conservation has been the wider public understanding of the problems of the oil business and the happily altered attitude of governmental agencies in assisting in their solution.

Both the Federal Government through the Federal Oil Conservation Board and the Federal Trade Commission, and the states through their conservation or corporation commissions, have shown an intelligent and sympathetic readiness to lend official aid to oil operators in carrying out their program of co-operative conservation.

This would have been regarded only a few years ago as just as improbable and impossible as that oil men themselves should ever get together on a co-operative plan. It is a remarkable evidence of the extraordinary progress achieved in a very short time.

The consequence is that the industry today, despite the experience of 1927, is in a healthier condition and better position for the future than it ever has been.

It has established its right and ability to deal with its own problem without fear of interference. It has adopted for its own good, as well as for the benefit of the country, a policy of conservation that will assure the utmost possible recovery of oil and utilization of gas. It has found and proved a method for checking overproduction that should be an insurance against future experiences like that of the past year.

The net outcome should be a stabilization of the industry which will carry it forward on a sound and prosperous level that will be of benefit to the whole business and to the country at large.

It is possible that some who like to regard the oil business as a "game" or a "gamble" may sigh for the old days of excitement, of feast or famine, but in the long run a steady diet will be found more satisfying.

Production is an uncertain factor but consumption grows steadily. It was only three years from the flood of 1923 to the prosperity of 1926. We may be thankful for the present co-operation on conservation when we begin to draw upon the reserves that are now being accumulated.

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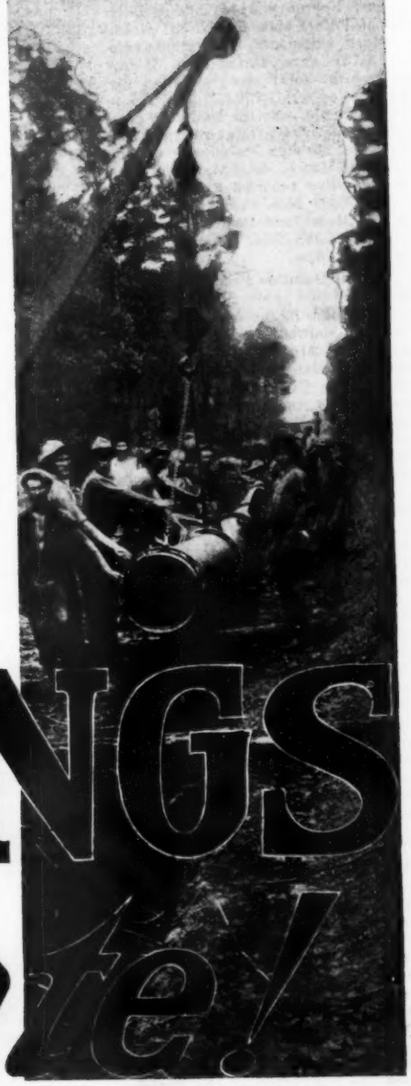

COUPLINGS

Dominate!

Wilbarger 1,800 Foot Sand Extended

Producer Completed 4 Miles West of Production. Loving Pool in Young County Also Extended. Panhandle Shipments

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 16.—Wichita Falls district proved the most colorful area in North Texas during the week closed and its "color" was confined to the extension of production in two areas there. Panhandle and Ranger districts were at that stage where few wells were drilling at depths likely to cause a flurry of excitement in a new territory.

Panhandle continues to show a healthy condition so far as storage is concerned and the March pipe line statements showed that storage was drawn on during that month at the rate of 2,000 bbls. daily. Stock figures as of April 1 showed 18,333,000 bbls. in storage divided among four counties as follows:

Hutchinson County	7,715,000
Carson County	4,980,000
Gray County	5,590,000
Wheeler County	48,000
Total all counties	18,333,000
Total storage capacity	24,299,000
Room available	5,966,000

The daily average production was 72,523 bbls. daily and the total daily average receipts amounted to 74,714 bbls. with 2,191 bbls. daily drawn from storage. March daily average production of 72,523 bbls. from 1,397 wells was an increase over February which had a daily average of 72,000 bbls. from 1,391 wells.

Tank car shipments from Panhandle totaled 1,791 cars during the 31-day period and the total pipe line runs for the same period was 1,759,536 bbls. Humble Pipe Line Co. was the leader in pipe line movements with a total movement of 935,759 bbls. through its carrier during the month of March. Gulf-Magnolia companies' joint line reported a total movement of 619,309 bbls. through that carrier during March and Prairie Pipe Line Co. moved 204.468 bbls. through its line to Kingsmill, Okla.

Natural Gasoline Production

Natural gasoline production of the field remained around its normal production, but storage showed an increase. The stocks on hand April 1 totaled 3,258,000 gallons compared to 2,965,000 gallons on hand March 1. Production from plants situated in five counties of Panhandle was 11,755,000 gallons during March and a total shipment of 420 tank cars was reported from the various loading racks.

Aside from the monthly stock figures there was little in the way of spot development to interest the Panhandle operators.

Danciger and others' No. 1 C. W. Bradford, NE cor. SE Section 123, Block B-2, 2 miles east of the prolific Bowers Pool, failed to extend oil production in that direction. The well was completed as a 20,000,000-foot gas well at a total depth of 2,750 feet. The same operators completed a 15,000,000-foot gas well at 2,875 feet about 1½ miles northwest of production in the LeFors area. The well was No. 1 A. Chapman, SW cor. NW Section 7, Block 26.

Over to the east of that well McCauley and associates' No. 1 Morse, SE cor. N half Section 3, Block 26, in semiwildcat territory, was completed flowing 120 bbls. daily from granite wash at 2,386-2,541 feet. The well is about half a mile northwest of the nearest production.

Half a mile southeast and offsetting a small producer, Danciger and others' No. 1 Morse, SE NE SW Section 2, Block 26, flowed and swabbed 150 bbls. in 24 hours from granite wash at 2,469-2,520 feet and is to be drilled deeper.

Six new locations were reported from Gray and Hutchinson Counties, three in each county. Production declined due mainly to a decline in Hutchinson County. Moore County went back on production upon the completion of the Prairie Pipe Line Co.'s extension of a line into that county.

Wichita Falls District

Pool extensioners and the closing of deals involving producing acreage featured the reports from the Wichita Falls district.

The Loving shallow pool in Young County was extended about 900 feet south with a 103-bbl. well when Shaw, Riggs and associates' No. 3 McKinley, in the northeast corner of Block 1,489, was completed at 524-51 feet.

This shallow pool north and west of the town of Loving has started a play in the northeast part of Young County that has been gaining impetus each week. The shallow pay and the initial production ranging anywhere from 25 bbls. to 500 bbls is a lure to scores of operators. Consequently lease and royalty trading has been brisk.

Reports show around 50 operations in the close vicinity of the pool and last week 20 locations were reported from that area. Most of Young County's completions for the past seven days, unusually numerous, were wells in the Loving area. The last report, however, does not match the good wells that have characterized the completions in the Loving Pool in recent weeks. The shallow wells do not hold up well and drop off rapidly as is shown by pipe line reports.

As a whole operations in the Wichita Falls district continues to gain and has shown a steady increase for several weeks. Three counties, Wilbarger, Archer and Young, have been responsible for most of the increased activity. The week's report on the area shows an increase both in new locations and wells drilling. Production has been climbing steadily but slowly for the past month.

The outstanding development in Wilbarger County was the extending of the 1,800-foot sand in the southeast part of the county by Staley-Wynne's No. 1-B Waggoner, Section 25, Block 4, H.&T.C. Survey. The well topped the sand at 1,886 feet and bottomed at 1,906 feet and headed a few times. The nearest production from this horizon is about 4 miles to the west. In the area of Staley-Wynne's No. 1-B Waggoner the production comes from 2,200-2,300 foot pays.

This section of the county is most active at the present time and during the week the E. B. Lawson interests of Oklahoma bought a part of the holdings of Tower-McKanna, Inc., in Section 30, Block 4, H.&T.C. Survey, and 80 acres out of the W. T. Waggoner ranch. The producing property had around 600 bbls. of production and was sold for a cash consideration reported to be $250,000.

Reports from the other counties were more or less of routine character. Archer County, still active, reported only a few completions, none of which was sensational in initial production. Most of the producers were completed in the Gohlke Pool which was opened a few weeks ago.

Ranger District

The Ranger district field reports were almost colorless and little excitement was reported from that area. One of the most closely followed spots in that district is the area south of Cross Cut opened a few days ago by Cranfill & Reynolds with an 800-bbl. well. The well is now producing around 400 bbls. daily.

A couple more wells were added to the Clark-Buffalo Pool, the best of which was a 175-bbl. well. Considerable interest is manifest in Brock and associates' No. 1 Trapp near the city limits of Brownwood. The well had a showing at 1,550-68 feet, and was shot with 20 quarts. It is being cleaned out.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending April 14, 1928

ARMSTRONG COUNTY

Company, Well, Farm, Name, Section and Block—	Remarks—
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H.&G.N. Sur.	Drlg. by bit, 3,780 ft.

BRISCOE COUNTY

C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B.S.&F. Sur.	S.D., 1,620 ft.

CARSON COUNTY

Amarillo Oil Co.'s No. 1 E. S. Polling, C NE of N 80 acres of NE, Sec. 12, Blk. Y-2, B.&B. Sur.	Drlg., 2,090 ft.
Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y.	T.A., 2,110 ft.
Empire G. & F. Co.'s No. 1 J. C. Noel, C SW, Sec. 41, Blk. 4, I.&G.N. Sur.	Drlg., 400 ft.
Empire G. & F. Co.'s No. 1 E. W. Sheridan, C NE, Sec. 243, Blk. B-2, H.&G.N. Sur.	Set 20-in. csg., 215 ft; drlg., 2,170 ft.
Gulf Prod. Co.'s No. 1 W. E. Cobb, SE cor. S half NE, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. salt, 1,815 ft.
Marston Oil Co.'s No. 1 J. L. Noel	Drlg., 3,010 ft.
Skelly Oil Co.'s No. 2 H. Schafer, NE SW SW, Sec. 88, Blk. 4, I.&G.N. Sur.	Set 10-in. csg., 1,077 ft; drlg., 2,805 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D., 510 ft. for csg.

CHILDRESS COUNTY

Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Haggard Sur.	Spudded and S.D.
C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Set 6-in., 2,902 ft; S.D., 4,005 ft.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards	Spudded and S.D.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur.	Rig on ground.

DALLAM COUNTY

Wood Bros. et als' No. 1 Capitol Synd., Sec. 19, Blk. 17.	Hole full wtr., 4,007-4,127 ft; drlg., 4,445 ft.
Marland Oil Co.'s No. 1 A. M. James, C SW W half, Sec. 21, S. H. McElreath Sur.	500 ft. wtr. in hole; drlg., 3,195 ft.
Marland Oil Co. et als' No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land	S.D., 3,500 ft.

DONLEY COUNTY

A. T. Drlg. Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C	1,200 ft. wtr., 3,115-22 ft; show gas, 3,140-60 ft; dry G.W., 3,200-93 ft; cmt. 8-in., 3,510 ft; fish. for bailer, 3,527 ft.
Martin & Watson's No. 1 W. J. Ball, Sec. 22, Blk. E, D.&P.R.R. Sur.	Cellar.

FLOYD COUNTY

Explin. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur.	Spudded and S.D.
Explin. Co.'s No. 1 Land & Cattle Co.	S.D., 2,825 ft.
Hoffer Oil Corp.'s No. 1 Nelson	Spudded and S.D.

GRAY COUNTY

Archer Blake's No. 1 Turneaux, SW cor. Sec. 111, Blk. B-2	S.D., 255 ft.
Biggs et als' No. 1 Morse, SW cor. Sec. 3, Blk. 26, H. &G.N. Sur.	3,000,000 ft. gas, 2,158-94 ft; fish. bit, 2,220 ft.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1	S.D., 3,860 ft.
Danciger O. & R. Co.'s No. 7 W. Jackson, Sec. 88, Blk. B-2, H.&G.N. Sur.	3,000 ft. T.D.; making 5,000,000 ft. gas, 2,779-3,000 ft. and 5 bbls. oil; stdzng., 3,000 ft.
Danciger O. & R. Co.'s No. 9 W. Jackson, NW cor. NE NW, Sec. 88, Blk. B-2	Junked hole, 2,880 ft; skidded 50 ft. N; drlg., 920 ft.
Danciger O. & R. Co.'s No. 1 W. Crank, SW cor. NW, Sec. 163, Blk. 3, I.&G.N. Sur.	Cmt. 8-in. csg., 2,518 ft; drlg. lime, 2,740 ft.
Danciger Oil Co.'s No. 1 J. S. Morse, SE cor. NE SW, Sec. 2, Blk. 26, H.&G.N. Sur.	15,000,000 ft. gas, 2,365-2,456 ft; 150 ft. oil in hole; flowed and swbd. 150 bbls. 24 hrs. from G. W., 2,469-2,520 ft; to d.d.
Danciger et als' No. 1 R. Smith, SW cor. Sec. 149, Blk. 3	Location.
Dillard et als' No. 1 Furney, NE cor. SE, Sec. 202, Blk. B-2, H.&G.N. Sur.	Rig.
Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk. 3.	Wtr., 3,380 ft. and 3,430 ft. show oil; H.F.W., 3,650 ft; T.D., 3,870 ft; U.R. 6-in. csg., 3,852 ft; S.D., 4,152 ft.
Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur.	Drlg., 890 ft.
Edwards et als' No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H.&G.N. Sur.	70,000,000 ft. gas, 3,512-2,630 ft; top G.W., 3,034 ft; 2,000 ft. oil in hole; fish., 3,232 ft.
Empire G. & F. Co.'s No. 1 S. A. Cobb, NW cor. NE, Sec. 64, Blk. 25, H.&G.N. Sur.	Show oil, 2,510 and 2,627 ft; drlg., 3,065 ft.
Empire G. & F. Co.'s No. 1 T. Cobb-"B," C NW, Sec. 178, Blk. 3, I.&G.N. Sur.	Cmtd. 8-in., 2,080 ft.
Empire G. & F. Co.'s No. 1 A. J. Dauer, NW SE SE, Sec. 236, Blk. B-2, H.&G.N. Sur.	Set 12-in., 1,055 ft; S.D., 2,350 ft.

(Continued on Page 154)

PANHANDLE COMPLETIONS
Week ended April 14

Gray County

Danciger Oil & Refining Co.'s No. 1 C. W. Bradford, NE cor. SE Section 123, Block B-2, H.&G.N. Survey, made 20,000,000 feet of gas from pay at 2,339 to 2,750 feet. Same company's No. 1 A. Chapman, SW cor. NW Section 7, Block 26, H.&G.N. Survey, was drilled to the total depth of 2,875 feet and produced 15,000,000 feet of gas from pay at 2,025 to 2,245 feet. McCauley and others' No. 1 J. S. Morse, SE cor. N half Section 3, Block 26, H.&G.N. Survey, found the granite wash at 2,386 to 2,541 feet and flowed 120 bbls. daily. J. T. Parks has temporarily abandoned the location for his No. 1 N. H. Reed, NE cor. west 236 acres N half Section 1, Block B-2, H.& G.N. Survey. The Texas Company's No. 2 Chapman-B, Section 31, Block 25, H.& G.N. Survey, was drilled to the total depth of 2,838 feet and produced 250 bbls. oil and 4 bbls. water from pay at 2,818-22 feet.

Potter County

Frank Allen and others' No. 1 W. H. Bush has been temporarily abandoned at 410 feet.

Wheeler County

Lone Star Gas Co.'s No. 1 C. George, C SE SE Section 88, Block 17, H.&G.N. Survey, was drilled to the total depth of 2,000 feet and made 2,200,000 feet of gas from pay at 1,765-70 feet. Vaughn and others' No.1-B Ackley, C NE NW Section

4, Block 27, H.&G.N. Survey, made 35,000,000 feet of gas at 1,792 to 1,960 feet.

WICHITA FALLS DISTRICT COMPLETIONS

Week ended April 14

Archer County

Empire Gas & Fuel Co.'s No. 1 Parkey-A made 87 bbls. at 1,708-09 feet. Fain-McGaha and Humble Oil & Refining Co.'s No. 5 Wilson-C made 120 bbls. at 1,573-80 feet. Fain-McGaha and United Producers Co.'s No. 7 Wilson-B made 312 bbls. at 1,561-79 feet. F. H. Gohlke and others' No. 4 Wilson-B made 70 bb's. at 1,556-63 feet. J. P. Rayzor's No. 1 Turbeville made 20 bbls. at 1,458-64 feet. Simms Oil Co.'s No. 22 Turbeville-A made 20 bbls. at 1,491 to 1,510 feet. Panhandle and Johnson's No. 2 Garvey was shot with 20 quarts at 756-70 feet and made 12½ bbls.

The following wells were dry and abandoned: Fain-McGaha Oil Corp.'s No. 1 Parrish Brothers at 1,650 feet. Consolidated Oil Co.'s No. 1 Lisle at 1,500 feet. Rose & Humble Oil & Refining Co.'s No. 1 Crawford was junked at 1,353 feet. Underwood Drilling Co.'s No. 1 Martin at 1,505 feet.

Clay County

H. R. Edward's No. 2 Westell was dry and abandoned at 440 feet.

Jack County

Baldwin and others' No. 1 Ainsworth was dry and abandoned at 2,484 feet. S. E. J. Cox's No. 1 Walker was dry and abandoned at 390 feet.

Montague County

Oil Operators Trust Co.'s No. 7 Bouldin made 15 bbls. at 818-40 feet. Same company's No. 8 Bouldin made 25 bbls. at 820-33 feet. H. E. Crenshaw and others' No. 1 Shockley was dry and abandoned at 2,004 feet.

Wichita County

E. H. Clark and others' No. 7 Waggoner made 20 bbls. at 952-64 feet. The Texas Company's No. 347 Waggoner made 50 bbls. at 1,942-45 feet. Ramming & Saunders' No. 1 Logan was dry and abandoned at 1,675 feet.

Wilbarger County

Cosden & Co.'s No. 18 Waggoner-B made 38 bbls. at 2,284-95 feet. This well was drilled to the total depth of 2,307 feet. The Texas Company's No. 345 Waggoner made 245 bbls. at 2,294 to 2,305 feet. Fain-McGaha Oil Corp.'s No. 4 Waggoner-O was dry and abandoned at 1,986 feet. Sloan's No. 2 Waggoner was dry and abandoned at 4,090 feet.

Young County

Allday Oil Corp.'s No. 2 Johnson-B made 30 bbls. at 577-92 feet. Allday and Carter's No. 8 McKinley made 12 bbls. at 512-33 feet. Bulling, Lee & Pendleton's No. 1 Boone made 5 bbls. at 482-92 feet. Christie & Steel's No. 1 Hamilton made 26 bbls. at 1,012-17 feet. Shappell Oil Co.'s No. 6 Johnson found the pay at 515-26 feet and made 3 bbls. Same company's No. 7 Johnson made 40 bbls. at 487 to 508 feet. Shaw, Riggs and others' No. 3 McKinley found the pay at 524-51 feet and made 103 bbls. Mid-Texas Oil & Gas Co.'s No. 3 Childress & Donnell made 136 bbls. from pay at 337-37 feet. Panhandle Refining Co.'s No. 1 McCluskey was shot with 260 quarts at 4,007 to 4,190 feet and with 120 quarts at 4,250 to 4,305 feet and had an initial production of 50 bbls. Paul Oil Co.'s No. 1 Eddleman made 40 bbls. at 1,806-12 feet. Ruthada's No. 2 Stovall was drilled to a total depth of 4,312 feet and after a 50-quart shot at 3,940-90 feet flowed 30 bbls.

The following wells were reported as dry and abandoned: Amerada Petroleum Corp.'s No. 3 Johnson at 608 feet. Same corporation's No. 4 Johnson at 605 feet. Kleiner and others' No. 3 Hawkins at 552 feet. Shaw, Riggs and others' No. 2 McKinley at 670 feet. Simms Oil Co.'s No. 1 Moreland at 622 feet. Williams & Willis' No. 1 Horton at 651 feet. Wolf's No. 4 Dunagan at 1,012 feet. Wolf and others' No. 1 Jeffery at 868 feet. Amerada Petroleum Co.'s No. 2 Johnson at 700 feet. Roberts Oil Corp.'s No. 1 Donnell at 3,333 feet. Shaw and others' No. 1 Martin at 2,616 feet. Stovall's No. 9 fee was junked and abandoned at 2,860 feet.

RANGER DISTRICT COMPLETIONS

Week ended April 14

Callahan County

E. B. Richards' No. 1 Harris was dry and abandoned at 854 feet. States Oil Corp.'s No. 1 Ingram was also dry and abandoned at 2,015 feet.

Brown County

Baker and others' No. 1 Cross made 50 bbls. at 1,076-85 feet. Cranfill & Reynolds' No. 1-B Newton made 20 bbls. at 1,139-44 feet. Forest Oil Co.'s No. 4 Moore was shot with 3 quarts at 1,248-57 feet and made 313 bbls. Gilman & McMurray's No. 2-A Hickman made 400 bbls. after a 30-quart shot at 1,235-75 feet. Henshaw Oil Corp.'s No. 6 Bush made 60 bbls. Same corporation's No. 8 Bush found the pay at 1,079 to 1,109 feet and made 175 bbls. Jay Hawk Oil Co.'s No. 3 Boyson made 75 bbls. at 1,222-34 feet. Pandem Oil Co.'s No. 7 Hutton was shot with 3 quarts at 1,109-21 feet and made 7 bbls. Smith Oil Co. and others' No. 2 Trueheart was shot with 5 quarts at 1,109-19 feet and made 40 bbls. Inland Oil Co.'s No. 1 Linton made 160,000 feet of gas after a 10-quart shot at 1,455-65 feet.

The following wells were reported as dry and abandoned: Simms Oil Co.'s No. 1 Butler had a hole full of water at 1,290-98 feet and was plugged. Hammon & Garrett's No. 1 Childers at 978 feet. A. E. Metts' No. 2 Childers at 1,110 feet. Bush & Spinney have abandoned the location for their No. 1 Gwathney.

Coleman County

Ehorn and others' No. 1 Beck was dry and abandoned at 2,015 feet.

Comanche County

Fain and others' No. 1 Smith made 12 bbls. after an 80-quart shot at 2,760-92 feet. Hoffer Oil Corp.'s No. 1 Kirk was drilled to the total depth of 2,965 feet and after a 20-quart shot at 2,585-95 feet and a 270-quart shot at 2,690 to 2,790 feet had an initial production of 1,500,000 feet of gas. Scroggins and others' No. 1 Poteet made 51 bbls. at 3,769-79 feet.

Eastland County

Lewis and others' No. 1 Johnson was shot with 200 quarts at 3,412-68 feet and made 12 bbls. Root and others' No. 1 Watson made 75 bbls. at 3,640-47 feet.

The following wells were reported as dry and abandoned: May and others' No. 5 Connellee had a hole full of water at 1,370-80 feet and was abandoned at 1,425 feet. Charter Oil Co,'s No. 1 Turner at 1,600 feet. Knox and others' No. 1 Lightfoot at 1,600 feet. J. B. Gordon's No. 1 O'Rear at 1,228 feet. Moody Corp.'s No. 1 McClelland at 4,123 feet. Phillips Petroleum Co.'s No. 1 Pence at 4,165 feet.

Shackelford County

J. P. Harris' No. 2 Matthews made 15 bbls. at 1,021-27 feet. Tannehill Oil Co.'s No. 1-27 Matthews made 820 bbls. at 1,134-62 feet. Treat Oil & Gas Co.'s No. 1 Matthews found the pay at 1,165-80 feet and had an initial production of 200 bbls.

The following wells were reported as dry and abandoned: Boehn and others' No. 1 Davis at 1,020 feet. M. R. Brown's No. 1 Matthews at 1,520 feet. McLester Oil Co. and others' No. 1 Moberly at 1,555 feet. C. Phillips & Dewitt's No. 1 Davis at 1,903 feet. The Texas Co.'s No. 1 Scarborough at 992 feet.

Stephens County

The Texas Company's No. 3 Martin and others made 30 bbls. at 3,178 to 3,231 feet. Beatty and others' No. 1 Ledbetter was drilled to the total depth of 4,158 feet and produced 700,000 feet of gas from pay at 3,592 to 3,648 feet. Thompson and others' No. 1 Langford was dry and abandoned at 2,404 feet.

NORTH TEXAS

Estimated Daily Average Production for the Week Ending April 14

Panhandle—	
Carson County	7,065
Gray County	21,945
Hutchinson County	41,710
Moore County	200
Potter County	25
Wheeler County	900
Total this week	71,845
Total last week	72,905
Decrease	1,060
Wichita Falls District—	
Archer County	21,218
Baylor County	83
Clay County	511
Cooke County	3,274
Jack County	1,423
Montague County	9,208
Throckmorton County	983
Wichita County	27,492
Wilbarger County	12,649
Young County	8,501
Total this week	85,334
Total last week	85,082
Increase	252
Ranger District—	
Brown County	12,610
Callahan County	3,745
Coleman County	1,620
Comanche County	1,350
Palo Pinto County	450
Ranger	7,803
Shackelford County	9,240
Stephens County	8,417
Total this week	45,235
Total last week	46,166
Decrease	931
Grand total this week	202,414
Grand total last week	204,153
Decrease	1,739

Late News from the Field

OKLAHOMA

The Greater Seminole area produced 281,860 bbls. for the 24 hours ending Tuesday morning at 7 a. m. Production by pools was:

Little River	42,074
Bowlegs	73,676
Earlsboro	94,402
Seminole	55,218
Searight	16,460
Total barrels from 1,086 wells	281,830

The most sensational news heard from this field in some time was the completion of the Gypsy Oil Co.'s No. 1 Canard, SE cor. NE NE Section 22-7-6, which is a direct offset to the Independent Oil & Gas Co. and Highway Oil & Refining Co.'s No. 1 Harris, which started the excitement in this region. The Gypsy Oil Co.'s well is flowing 150 bbls. an hour at 5 feet in the sand which was topped at 4,200 feet. The total depth of the well is 4,205 feet. This is an exceptional rate of flow for a well which has sustained the drainage effects such as were caused by the flow of the Independent-Highway well. According to geological calculation, the Gypsy well is running 100 feet higher than the Independent-Highway well, and is some few feet higher than the Snowden & McSweeney well in Section 13-7-6.

The region south of Little River is now watched very closely. There has been one dry hole and one good well on the scoreboard to date. The dry hole was one of the test wells, and was drilled by the Prairie Oil & Gas Co., SW cor. SE SE Section 12-7-6, three-quarters of a mile east of the Snowden & McSweeney well.

The key wells in the St. Louis-Pearson Switch area are producing as follows: Gypsy Oil Co. and Westheimer & Daube's No. 2 Leclaire, NW cor. SW NE Section 23-7-4, flowing 1,575 bbls. daily. The Mid-Continent Petroleum Corp. and the McCulloch Oil Co.'s No. 1 Smith, NW cor. SE Section 25-7-4, flowing 1,020 bbls. of oil and no water. This well will be shot. Magnolia Petroleum Co.'s No. 2 Robbins, SW cor. SE SE Section 15-7-4, is holding steadily at 1,600 bbls. daily, after declining from a peak production of 3,800 bbls. The first two wells are producing from the Simpson sand, and the latter from the Hunton lime.

WEST TEXAS

FORT WORTH, Tex., Apr. 17.—Gibson & Johnson's No. 1 Leck, Section E, Block 74, Winkler County, had a slight show of gas in lime at 2,956 feet and another small gas show in sand at 2,962-64 feet. The crew is thickening mud and will drill deeper. In the Hendricks Pool, Atlantic Oil Producing Co.'s No. 4 Grisham-Hunter, Section 41, Block B-5, came in making an estimated flow of 5,000 bbls. and was shut in for the lack of storage.

In the Panhandle, Ray & Massie's No. 1 Chapman, Section 51, Block 25, Gray County, paraffined up two days ago and was cleaned out yesterday. The well started off flowing 350 bbls. per hour from granite wash at 2,790 to 2,800 feet and is now making 135 bbls. per hour.

CALIFORNIA

LOS ANGELES, Calif., Apr. 17.—Associated Oil Co. definitely proved up the new Potrero Field in Los Angeles Basin by finishing No. 2 Cypress, flowing at the rate of 1,000 bbls. clean 36-gravity oil daily from 4,620 feet. The initial well in this area, Associated Oil Co.'s No. 1 Cypress, was finished several months ago, and while it showed only small production on account of poor location structurally it subsequently proved up two separate zones. No. 1 is pumping 75 bbls. daily from lower strata, while No. 2 shows a potential of better than 1,000 bbls. from the upper horizon, although the latter is temporarily closed in due to absence of pipe line facilities. The proximity to other fields renders installation of a pipe line a very simple matter requiring not over 5 miles of line. Associated Oil Co. appears to have practically the entire productive acreage of the new field tied up by lease and fee owned acreage, and consequently future work will be along normal lines devoid of intensive townlot development.

GULF COAST

HOUSTON, Tex., Apr. 17.—The Texas Company Monday abandoned its No. 1 Green in the Mile North extension of the South Liberty Field. This test, the second to be abandoned, was in rock at a total depth of 3,003 feet. Sun Oil Co.'s No. 2 Abshier, in the same district, was brought in flowing 15 bbls. hourly from sand at 1,918 feet but Tuesday, after flowing 24 hours, it stopped. It probably will be deepened. Sun Oil Co.'s No. 1 Richardson cored a sand showing oil at 900 feet and is shut down waiting orders. If the latter is productive it will make the fourth sand in as many wells in the recently opened extension. Yount Lee Oil Co.'s No. 4 Mitchell, in the other South Liberty extension, 500 feet north of production, cored a water sand around 3,400 feet where it should have found the oil sand. This is 300 feet east of No. 1 Mitchell, the well which extended the field.

ARKANSAS NATURAL GAS AS NEWLY ORGANIZED

SHREVEPORT, La., Apr. 14.—Organization of the Arkansas Natural Gas Co. of Delaware, parent company of the Southern Cities Distributing Co., into which gas producing, transporting and marketing properties of the Cities Service Co. subsidiaries in Arkansas, the Arkansas Natural Gas and Arkansas Fuel Companies in Arkansas and North Louisiana and the Middle West Utilities Co. in Louisiana, Arkansas and East Texas have been merged, was effected in New York this week, according to information received by local representatives of the Southern Cities. H. L. Doherty is president of the company; D. W. Harris, Shreveport, vice president and general manager; J. R. Munce, Pittsburgh, vice president; T. H. Barton, El Dorado, Ark., vice president; F. R. Coates, New York, vice president; W. A. Jones, New York, vice president; Joe Zeppa, El Dorado, Ark., secretary; E. H. Johnson, New York, treasurer; E. N. Watkins, assistant treasurer, and J. C. Hamilton, Shreveport, assistant secretary. Formal choice of officers for the Southern Cities Distributing Co. have not been selected at this writing.

J. R. Munce was in charge of the Benedum & Trees interests in this territory as vice president of the Arkansas Natural Gas Co. for several years prior to his transfer to the headquarters of those interests in Pittsburgh. Col. T. H. Barton and Joe Zeppa were at the head of the Doherty properties in Arkansas as executives of the Natural Gas & Fuel Corp. and Public Utilities Corp. of Arkansas with headquarters at El Dorado.

Storage and Water Cut Winkler Output

Drop of 26,000 Bbls. May Be Offset by Gains Following Week. Hendricks May Have Reached Peak

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 16.—A 26,000-bbl. drop in daily average of Winkler County during the past week was one of the most interesting developments to West Texas operators. The drop in daily average was traced to the shortage of storage on many leases and the intrusion of water to a greater extent.

The increasing number of wells showing water has given more fuel to the argument that proration will not be needed for Hendricks in a few weeks because the water encroachment will have cut the field's production down to where it ceases to be a market threat.

Those contending that water will more or less ruin the field in a few weeks are in the minority. Unrestrained producing of wells, it is granted, will cause a coning condition and dissipate the field's pressure geologists point out. This condition, however, is expected to be relieved and thereby secure a greater ultimate recovery for the field.

Regardless of the present water situation a great many geologists hold that Hendricks is going to produce many million barrels of oil. It has been pointed out that Luling is one of the great fields that water was destined to ruin. To date that field has produced, roughly, close to 50,000,000 bbls. of crude and is still making around 14,000 bbls. daily. Since the first well was drilled in Luling water showed in great volume and practically every well made around 50 per cent water.

In the meantime the Texas Railroad Commission held a final meeting with Winkler County operators and will issue a proration order for the field within a few days. This order is expected by the majority of operators in Hendricks to ignore the existing contracts in the field. In any event an order is expected that will cut down production to a great extent eliminating unrestricted flowing of many wells and thereby increasing the ultimate production.

Gain Next Week

Going back to the sharp drop in production, however, this decline will likely be offset by equal gains during the current week. Storage generally in the field is not crowded but in a few instances last week storage was congested on some leases. It was coincident that treating plants on some leases were shut down for a couple of days for repairs during the same period. Since the latter part of last week production has been hovering around 205,000 bbls. and will be reflected in the next production estimate of the field.

Hendricks may have reached its peak when it soared to 225,000 bbls. several days ago. Its potential peak has not been reached, however, because when it went to 225,000 bbls. a great many wells were pinched and some far from their capacity—Cranfill & Reynolds' No. 1-C in the north part of the field, for one.

Many operators are pinching their wells down to a greater extent as a result of the water intrusion to avoid coning conditions and the dissipation of pressure. This general pinching of wells may last until the railroad commission issues its proration order some time this week and in that event Hendricks may not go over the 225,000-bbl. mark.

So far as the water condition is concerned at present a great many geologists and engineers are not greatly alarmed. They point to the fact that a great many of the wells now showing water have not been deepened to another pay zone. Only a few wells have been deepened.

It was argued at the Austin meeting of operators that something should be done immediately to reduce the hazard of coning conditions in the wells. As has been stated this will be taken care of in a few days and will serve to increase the ultimate recovery.

Two New Wells Show Water

Two new wells started showing water during the past week. Both were on the Republic Production Co.'s A lease in Section 45, Block 26, and one showed 3 per cent and the other 5 per cent water. Both wells are in a big flush spot of the field in the northern part and about a mile south of the prolific spot of the field. These wells have been pinched down and wells on adjoining leases are being pinched. These two wells bring the total number of producers showing water to 73 wells. Some of the wells are showing as high as 75 per cent water and b.s.

The north extension of Hendricks is capable of sending the pool to a new peak with ease. Cranfill & Reynolds' No. 2-C in Section 33, Block 26, and an east offset to the record well of the field looks almost as good as No. 1-C. It flowed 450 bbls. per hour at 2,760-62 feet with 600 pounds back pressure. Both No. 1 and No. 2 were pinched in and yesterday made 20,570 bbls. Humble Oil & Refining Co.'s No. 1-C, SE cor. of Section 32, Block 26, had an increase of pay from 2,834-43 feet and flowed 440 bbls. the first hour through a 1½-inch choke. During the first 17 hours the well made 8,685 bbls. pinched.

Two other wells in the north part of the field should reach the pay within seven days and will add to the already high potential production of that part of the field. Almost a mile to the north two other wells are drilling and making fast time. Both are considered to be in the money.

Eighty Wells Drilling

At the first of the week there were 80 wells drilling in the field. Of this number 15 wells were drilling in the pay while 39 others were drilling below 2,500 feet and the remaining 31 wells were drilling at depths less than 2,500 feet. There are 31 rigs and derricks in the field, 13 locations, 4 wells shut in and 6 wells shut down.

Independent Oil & Gas Co.'s east extensioner, No. 1 Cowden or McCabe, Section 36, Block B-5, is drilling at 2,933 feet but has not increased its 55 bbls. of oil production daily. To the northwest of that well, Amerada corporation is mixing mud to kill gas in No. 1 Walton.

Gibson & Johnson's No. 1 Daugherty, Section 3, Block 74, northern Winkler County, looks discouraging or encouraging, depending upon the point of view. The well Monday was drilling in white hard sandy lime at 2,930 feet. This well had its first show of oil at 2,756 feet and was reported to have had a slight show of gas at 2,851-65 feet. While the well has not yet been condemned those entertaining hopes of it making a commercial well are not encouraged.

Pecos Wildcats

In the Pecos wildcat territory, Rowan and Tong's No. 1 Scharff-Blackman, NE cor. south 320 acres of Section 4, Block 9, H.&G.N. Survey, is flowing sulphur water from 2,213-15 feet. This well showed a little gas and a slight show of oil at 1,645-57 feet and a little salt water at 1,950 feet.

Water encroachment was reported in another well in the northwest edge of the Yates Pool. Skelly Oil Co.'s No. 1 Tippett, Section 108, Block 194, made 35 bbls. and 7 per cent water.

In all probability Texon Oil & Land Co.'s No. 1-B University in the Big Lake Pool of Regan County will shatter the deep well record of the United States. This well is drilling, with cable tools, at a depth below 8,070 feet. Owners of the well said it would be carried below the record depth and probably as far as the hole would permit.

Other deep tests in West Texas are still drilling. Magnolia company's Val Verde County test is below 6,630 feet. David R. Thompson's No. 1 Eddins in Reeves County is shut down at 5,467 feet to splice a line and two other deep tests are below 4,500 feet.

WEST TEXAS COMPLETIONS
Weed Ending April 14

Crane County

Lockhart and others' No. 1 M. M. Treanor (Woods), Section 28, Block 1, H.&T.C. Survey, was drilled to the total depth of 2,149 feet. The well made 6 bbls. of sulphur water in 17 hours along with a show of oil at 2,147-49 feet and had been abandoned.

Crockett County

Grayburg Oil Co.'s No. 2 H. M. Halff, Section 70, Block 1, I.&G.N. Survey, topped the pay at 1,031 feet and was drilled to 1,116 feet. The well has been plugged back to 1,105 feet and is swabbing 25 bbls. of oil, 5 per cent water.

Howard County

F. H. E. Oil Co.'s No. 3 Dora Roberts-A, Section 156, Block 29, W.&N.W. Survey, topped the pay at 1,845 feet and bottomed at 1,865 feet and after an 80-quart shot swabbed 75 bbls. the first 24 hours.

Jones County

Rhodes & Highers' No. 1 E. Howell, Section 20, Block 19, T.&P. Survey, found the pay at 2,520-24 feet and swabbed 150 bbls. the first 24 hours. The well is now pumping 118 bbls.

Pecos County

Kirby Petroleum Co.'s No. 1 J. H. Tippett, CWL E half W half Section 40, Block 194, topped the pay at 1,263 feet and was drilled to a total depth of 1,383 feet. The well was plugged back to 1,302 feet and shot with 100 quarts at 1,249-97 feet and flowed 86 bbls. the first 24 hours, 106 bbls. the second 24 hours and 79 bbls. the third 24 hours.

Kershaw & Livingston's No. 1 Cannon, Section 54, Block A-2, was dry and abandoned at 2,571 feet. Oregon Oil Co.'s No. 1 Yates has been abandoned at 1,430 feet. T. G. Shaw has abandoned the location for No. 1 Yates, Section 58, Block 1, I.&G.N. Survey.

Reagan County

The Texas Company's No. 3 J. D. Suggs, C Section 165, Block 2, T.&P. Survey, was dry and abandoned at 3,014 feet.

Runnels County

Gibson & Johnson's No. 1 H. P. Serratt, C SE NW Section 150, E.T.R.R. Survey, was shot with 10 quarts at 2,342-46 feet and had an initial production of 40 bbls. of oil and 13 bbls. sulphur water on the pump. Empire Gas & Fuel Co.'s No 1 C. C. Gray, Section 147, E.T.R.R. Survey, was dry and abandoned at 2,602 feet. Globe Oil Co.'s No. 1 J. H. Webb was dry and abandoned at 2,510 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 5 Hendricks-A, SW NE SW Section 34, Block B-5, topped the pay at 2,839 feet and bottomed at 3,043 feet. The well had increases of oil production at 2,870-80 feet and 3,038-43 feet and had an initial production of 300 bbls. per hour, 6 per cent water. Atlantic & Collett's No. 2 Hendricks-F drilled into the pay at 2,752 feet and flowed 360 bbls. per hour through a quarter-inch choke, and is temporarily completed at this depth. Southern Crude Oil Purchasing Co.'s No. 2 Hendricks, T-67-B, topped the pay at 2,860 feet and bottomed at 3,120 feet and had an initial production of 500 bbls. after a shot of 300 quarts at 2,990-3,110 feet. Texon Oil & Land Co.'s No. 2 Hendricks-A drilled into the pay at 2,758 feet and had an initial production of 2,080 bbls. of fluid, 56 per cent b.s. and water. White Eagle Oil & Refining Co.'s No. 1 Leck, Section 30, Block 74, was dry and abandoned at 3,700 feet.

ESTIMATED DAILY AVERAGE PRODUCTION—WEST TEXAS
Week Ending April 15

Crane County	65,537
Crockett County	2,401
Ector County	15
Fisher County	264
Howard County	3,785
Jones County	1,326
Loving County	130
Mitchell County	3,370
Pecos County	48,106
Reagan County	19,270
Runnels County	152
Scurry County	26
Upton County	13,440
Winkler County	183,332
To.al this week	341,214
Total last week	371,808
Decrease	30,594

WILDCAT OPERATIONS IN WEST TEXAS

Week ended April 14, 1928

ANDREWS COUNTY

Company, farm and location—Remarks—

Deep Rock Oil Co.'s No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land, elev. 3,167 ft.....Top salt, 1,690 ft; total depth, 2,860 ft; preparing to set 6-inch casing.

BORDEN COUNTY

Dixon Creek Oil Co.'s No. 1 Clayton & Johnson.....Top lime 2,410 ft.; shut down 2,240 ft.; drlg. 2,656 ft.

Marland Oil Co.'s No. 1 G. E. McDavid, C SW Sec. 156, Blk. 25, H.&T.C. Sur., elev. 2,310 ft.....Top salt 1,250 ft.; drlg. 3,230 ft.

Marland Oil Co.'s No. 1 Alexander Murphy, C SW Sec. 66, Blk. 25, H.&T.C. Sur., (3,250-ft. test).....Location.

BREWSTER COUNTY

Cowden & Bowser's No. 1 Jackson & Harmon, C N half Sec. 1, Blk. 331.....Rigging up.

Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.....Rigging up second hole.

J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.....Drlg. 1,010 ft.

Reese & White's No. 1 Kimbale, C NE Sec. 204, Blk. 9, G.H.&S.A. Sur.....Shut down 1,688 ft.

Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine.....Shut down 1,700 ft.

(Continued on Page 99)

DAILY AVERAGE PRODUCTION BY LEASES—WEST TEXAS
Week Ending April 14
Crane County

Company and Lease—	Wells	Bbls.
Church and others: University	1	16
Church & Weekley: University	3	1,047
Church & Fields: Duoli-University	1	23
Eastland Oil and Collett: University	8	3,303
Gulf Production Co.: All leases	67	16,887
Humble O. & R. Co.: University	13	4,227
Independent O. & G. Co.:		
University-A	5	*962
University-B	2	*728

(Continued on Page 153)

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Little River Test is Disappointing

Umpire Ray M. Collins Temporarily in Charge of Wildcat Regulation. Crude Position Reported Strengthening

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

The official application of the "lid" to all wildcat drilling ventures seems well started in Oklahoma, with Ray M. Collins, the umpire in charge of the Greater Seminole area, acting as the temporary "gendarme" in charge of all new wildcat projects. Operators now desiring to start new wells are making applications to Mr. Collins, pending the appointment of an umpire to arrange drilling permits. According to the reports of the committee which was appointed last week by J. C. Denton, president of the Oklahoma-Kansas section of the Mid-Continent Oil & Gas Association, there will be no hardships imposed upon operators who have made substantial progress with proposed wells, but the lid is to be vigorously applied to any projects which are now in the making.

The crude market in this area has been strengthened, although purchasers are giving no outward signs of an aggressive campaign to increase their daily crude runs, they are not refusing any proferred oil. The strong demand for better gravity crude continues, and occasionally reports of premiums being paid for crude of this nature are heard.

Seminole at Low Mark

The Greater Seminole Field continues the same rate of decline, and this week made another new low mark of 278,305 bbls. The daily pipe line runs out of the field show a drop which is more sharp than the production drop; and many producers are increasing their runs of Seminole crude to lease storage, against the possibility of improved price conditions. The present pipe line runs out of the field are 255,546 bbls. daily divided as follows:

Barnsdall	3,820
Consolidated	2,143
Empire	9,879
Gulf	25,725
Magnolia	34,145
Oklahoma	38,402
Ozark	18,112
Prairie	59,045
Pure	2,467
Shaffer	3,385
Sinclair	30,791
The Texas Company	21,001
Tidal	4,929
White Oak	1,702
Total, barrels	255,546

During the week, the Champlin Refining Co. of Enid opened its line built from the company's refinery at Enid to Seminole, and is taking crude. This line was not entirely constructed from Enid to Seminole, but was built from the old terminus of the line at the Watchorn Pool of Noble County to the Davenport Field of Lincoln County, thence to Henryetta, Okla., where it was connected to the old Gulf Pipe Line, which had been purchased by The Texas Pipe Line Co. The line was bought by Champlin, and is a 4-inch system running from Henryetta to the field at Seminole. The Champlin company has production of its own in the Deaner Pool in Township 11-11, and the line will tap this operation. It is significant that the line selects two high grade oil pools in its meanderings, the Davenport and Seminole Pools.

There has been considerable change in the runs of some crude purchasing companies who formerly had some oil farmed out to other purchasers. These concerns are slowly reclaiming their oil, running it through their own lines.

The fields were again quiet last week. On the east side of the Earlsboro Pool, the Magnolia Petroleum Co.'s No. 1 Hyde, NW cor. SE NW Section 13-9-5, made 1,244 bbls. daily at its peak from sand 4,415-19 feet. This is the first well on the east side of Earlsboro to have natural flow for several weeks, and it is close to the large well completed some months ago by the Prairie Oil & Gas Co. in No. 5 Davis, Section 12-9-5. The Magnolia well has water wells on two sides of it, and cannot be construed as having any important bearing upon this part of the pool.

Little River Production

Little River was the only one of the Greater Seminole pools which failed to show a decline last week, it making an advance upon four days, and remaining practically constant the remainder of the week. The production of the pools on Monday morning, 7 a. m., was:

	Bbls.
Little River	41,266
Bowlegs	75,191
Earlsboro	94,476
Seminole	55,593
Searight	16,483
Total (from 1,085 wells)	283,009

There was little change in the output of the Lovell area of Logan County in western Oklahoma. The production of the wells on Monday morning of this week was:

Roxana Pet. Corp.'s	Bbls.
McCulley	1,972
Ross	863
Freelove	2,403
Williams	337
Total	5,174

Looks Like Dry Hole

The first of the 10 test wells south of the Little River Field of Seminole looks like a dry hole. It is the Prairie Oil & Gas Co.'s No. 1 Hudson, SW cor. SE SE, Section 12-7-6, on the east side of the area. It had the Wilcox sand 4,215-20 feet with a hole full of salt water, and is drilling down to the second Wilcox sand in the hope of finding production. This well strikes a heavy blow to the prospects of the east side of Township 7-6, and practically eliminates the northeast portion from consideration for big production. The Gypsy Oil Co.'s No. 1 Candard, the direct west offset to the Independent Oil & Gas Co. and Highway Oil Refining Co.'s No. 1 Harris in Section 23-7-6, is swabbing some oil from the Simpson sand found at 4,185 feet. This well is located SE cor. NE NE, Section 22-7-6. The south offset to the Harris well is The Texas Company and Independent Oil & Gas Co.'s No. 1 Hotulke, NW cor. SW NW, Section 23-7-6, which is drilling in the Simpson sand at 4,040 feet, and running high. It should be drilled in this week.

Caddo County

English Drilling Co.'s No. 3 Gafney, CEL NW SE, Section 31-6-9w, cemented 8-inch casing at 2,240 feet, drilled on to 2,378 feet and is making 30 bbls. Caddo Oil Co.'s No. 1 McKenna, SW cor. NW NE, Section 5-5-9w, has been completed for 35 bbls. at 2,420 feet. Commerce Development Co.'s No. 1 Parks, NW cor. SW, Section 13-4-8w, set 8-inch casing at 2,204 feet, drilled to 2,335 feet and was completed for 26,000,000 feet of gas.

Creek County

National Refining Co. has a machine at the location for No. 3 Futrell, SW cor. NE SE, Section 1-19-9. Irelan and others' No. 1 Y. Well, SW cor. SE NE, Section 8-17-11, is spudding No. 1-A Weaver, NW cor. SE, Section 16-17-11, is also spudding. C. G. Tibbens has put up the rig for No. 37 Unallotted, NE cor. SE NE SW, Section 30-15-9. H. F. Wilcox Oil & Gas Co. has built the rig for No. 4 Kimble & Reading, SW cor. NE NW, Section 18-14-10. H. C. Wilson's No. 1 Durant, NW cor. NE, Section 10-15-8, an old well being deepened, is now fishing at 3,233 feet. The Prairie Oil & Gas Co. made location for No. 1 Skidmore, C SE NE, Section 35-18-7.

National Refining Co.'s No. 1 Futrell, SE cor. NE SE, Section 1-19-9, has been completed for 115 bbls. in the Red Fork sand 2,014-50 feet. Chief Drilling Co.'s No. 1 Hawkins, SW cor. NE, Section 16-17-10, made 125 bbls. from Dutcher sand 2,601-14 feet. Thompson & Black's No. 4 Broadnax, SE cor. NW, Section 16-17-11, has been completed for 2,500,000 feet of gas. Sibble & O'Hare's No. 1 Shreffner, SE cor. SW, Section 9-16-10, is dry and abandoned at 3,279 feet. J. B. Grieves' No. 7 Porter, CSL NW SE, Section 12-19-8, is a dry and abandoned well at 2,488 feet. J. W. Henry

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

GRANT COUNTY

Otstot Development Co.'s No. 1 Snyder, NE cor. NE Sec. 6-28-3w ..... Shut down 4,518 ft.
J. V. Bailey and others' No. 1 Maddox, C SE Sec. 18-27-5w ..... Estimated 2,000,000 gas, spray oil 4,835-42 ft.; underreaming 4¼-inch casing.
Thraves and others' No. 1 C. D. Fuss, SW cor. NW NW Sec. 30-27-4w ..... Abandoned 1,230 ft.
Burns & Beasley's No. 1 Bolsterton, SW cor. NW SW Sec. 24-27-3w ..... Rig abandoned.
Brasil & Moses' No. 1 Goutier, SW cor. NW Sec. 34-26-4w ..... Shut down for pipe 650 ft.
Lambert and others' No. 1 Tabor, SE cor. NE SE Sec. 23-26-3w ..... Abandoned after spudding.
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w ..... Fishing 5,640 ft.

HARPER COUNTY

Kopisch Oil Co.'s No. 1 Johnson, NE cor. SE Sec. 24-27-21w ..... Rigged up and shut down.
Hoffer Oil's No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w ..... Shut down 4,130 ft.

WOODS COUNTY

Sooner State Oil Co.'s No. 1 Marcum, C SW Sec. 20-27-15w ..... Rig abandoned.
Victor Oil Co.'s No. 1 Buskirk, SW cor. SE Sec. 10-26-15w ..... Hole full water, 775-800 ft.; shut down 900 ft.
McCray Oil & Gas Co.'s No. 1 Whitney, NE cor. NW SE Sec. 19-24-14w ..... Shut down 1,880 ft.

KAY COUNTY

Boucher and others' No. 1 Cooper, SE cor. SE Sec. 23-27-2w ..... Sand 2,580-90 ft., water, underreaming casing.
Ponca Lee Oil's No. 1 McNeil, NW cor. NE Sec. 32-26-2e ..... Shut down 2,795 ft.
Tonkawa Development Co.'s No. 1 McDaniels, SE cor. SE Sec. 15-25-1w ..... Fishing 4,625 ft.
Corley and others' No. 1 Williams, SE cor. NE SW Sec. 7-21-1w ..... Shut down for casing 1,930 ft.

WOODWARD COUNTY

Otstot Development Co.'s No. 1 Simmons, SE cor. SE Sec. 32-24-17w ..... Shut down for pipe 1,430 ft.
Wight & Wahl's No. 1 Williams, C NW Sec. 16-23-20w ..... Rig.
Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Shut down 1,092 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w ..... Shut down 2,772 ft.
Burgoyne Brothers' No. 1 Barnes, SW cor. SE NE Sec. 15-21-19w ..... Drilling 870 ft.
Wight & Wahl's No. 1 James, C NW Sec. 16-23-20w ..... Rig.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-8w ..... Hole full water 4,650 ft., shut down 4,720 ft.
Failing et al's No. 1 Gorusch, SE cor. SE Sec. 14-24-3w ..... Swedging pipe 4,767 ft.
Fleming and others' No. 1 Wengert, NW cor. NW Sec. 3-22-5w ..... Shut down 750 ft.
Boopple and others' No. 1 Schweer, C SW NE Sec. 12-21-4w ..... Shut down 1,850 ft.
Marland and Barnsdall's No. 1 Looman, NE SE Sec. 9-20-4w ..... Shut down 5,740 ft.
Marland Oil Co.'s No. 1 Miller, SW cor. SW Sec. 12-20-4w ..... Shut down 4,586 ft., waiting on test Sec. 9-20-4w.

ELLIS COUNTY

Oklahoma Northern's No. 1 Young, NW cor. NW Sec. 9-21-25w ..... Shut down 300 ft.
Hoffman and others' No. 1 Ottes, NW cor. NE Sec. 20-15-8w ..... Rig blown down.

NOBLE COUNTY

Barnsdall Oil Co.'s No. 1 Bumberger, NE cor. NW SE Sec. 11-21-1 ..... Cellar.

KINGFISHER COUNTY

Slick & Harrington's No. 1 Cromer, SE cor. NE NE Sec. 25-19-5w ..... Location.
H. H. Morgan's No. 1 Buscon, SW cor. SE NE Sec. 30-16-9w ..... Shut down 1,610 ft.
Galt-Brown Oil Co.'s No. 1 Wolff, NW SE Sec. 6-16-7w ..... Drilling 3,540 ft.
McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Drilling 4,360 ft.
Wiley & Manahan's No. 1 Johnson, C NW Sec. 26-16-5w ..... Shut down 4,512 ft.
Reiter-Foster Oil Co.'s No. 1 Unknown, SW cor. SE Sec. 23-15-5w ..... Rig.

LOGAN COUNTY

Champlin Refining Co.'s No. 1 Clark, SE cor. SW Sec. 8-19-4w ..... Drilling 5,825 ft., show of oil and gas.
Sinclair Oil & Gas Co.'s No. 1 Webber, SE cor. SE Sec. 18-19-4w ..... Drilling past pipe 4,500 ft., total depth 4,808 ft.
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w ..... Cleaning out 3,788 ft.
Garber & Pulse's No. 1 Widdoes, NE cor. SE NW Sec. 32-18-3w ..... Shut down 1,200 ft.
T. B. Slick's No. 1 Bryan, SW cor. SE Sec. 28-17-1 ..... Plugging back to sand 5,630 ft.; having casing trouble.
Willis and others' No. 1 Sweezy, SW cor. NW SE Sec. 20-17-3 ..... Shut down 4,677 ft.
W. R. Ramsey's No. 1 McMillan, NW SW Sec. 24-15-2w ..... Hole full of water 4,507-17 ft.; shut down for orders.
Bu-Vi-Bar's No. 1 Kirkpatrick, NE SW SW Sec. 12-15-1w ..... Drilling 4,880 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down.

MUSKOGEE COUNTY

Finefield and others' No. 1 Jobe, NE cor. NW SE Sec. 12-15-18 ..... Shut down 1,565 ft.
J. R. Parks' No. 1 Benge, CWL NE NW Sec. 13-15-19 ..... Dry and abandoned 1,415 ft.
Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 24-13-17 ..... Spudded and shut down.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Cleaning out 1,700 ft.

(Continued on Page 78)

With Flashing System

The refiner with no profitable market for coke can now operate his Dubbs Cracking plant, maintain his high yields of premium gasoline—the other products being distillate, premium fuel oil and gas for operating the process

In doing this he produces no more than one pound and in some instances less than an ounce of coke per barrel of charging stock run

If there is a gas plant nearby, sell the gas at a good profit, and use some of the fuel oil produced for operating the process Use whichever is the cheaper

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

and others' No. 1 Talamase, NE cor. SW NW, Section 7-15-7, has been shut in for 41,000,000 feet of gas from sand 3,635-90 feet. Roland Oil Co.'s No. 1 Scott, NW cor. SW SE, Section 10-15-8, has been abandoned at 3,269 feet. The Prairie Oil & Gas Co.'s No. 2 Sheppard, SE cor. NE SE, Section 35-15-7, has been completed for 30 bbls. in top of sand at 2,-563 feet.

Garfield County

Oil States Petroleum Co.'s No. 1 Barnes, SW cor. NE NW, Section 15-23-3w, was deepened from 2,039 feet to 3,950 feet and abandoned.

Grady County

Clark & Cowden's rig is under construction for No. 1 Freed, NE cor. SW SW, Section 23-5-7w. Oklahoma Gas Utilities Corp.'s No. 3 Sanford, NE cor. SE SW, Section 23-5-8w, has been completed for 35,000,000 feet of gas in sand 1,970-2,400 feet. Briscoe & Hall's No. 2 Dryden, CSL N half SE NW, Section 2-4-8w, cemented 8-inch pipe at 2,120 feet and after drilling to 2,400 feet was completed for 30,000,000 feet of gas. Carter Oil Co.'s No. 5 Horton, NW cor. NE NE, Section 17-3-5w, had sand 2,-474-75 feet and was completed for 50 bbls. Wirt Franklin Oil Corp.'s No. 7 Woods, NE cor. SW NE, Section 17-3-5w, has been abandoned at 2,575 feet.

Jefferson County

E. T. Danie's' No. 1 Black, NW cor. SW SW SE, Section 16-7s-5w, has been completed for 25 bbls. in sand 788-94 feet. Sigler & McGinley's No. 1 Pfile, NW cor. NE, Section 20-7s-5w, is making 40 bbls. from sand 776-90 feet.

Kay County

Royal Oil & Gas Co. is rigging up a machine to deepen No. 1 Fulton, C SE NE, Section 12-28-1w, from the old depth of 768 feet. Nehr & Wilson is moving in a spudder to drill for shallow gas in No. 2 Bursche, SE cor. NW SW SE, Section 4-27-1.

Carter Oil Co. and Ona Oil Co.'s No. 1 Nixon, SE cor. SW NE, Section 17-29-1, has been abandoned at 3,524 feet. Martin and others' No. 1 Buesing, C NE NW, Section 9-27-1, is dry and abandoned at 770 feet. Nehr & Wilson's No. 1 Buesing, NW cor. NE, Section 9-27-1, has been abandoned at 898 feet. Burnham & Pochelle's No. 3 J. Rustle, Jr., NE cor., Section 7-27-2, has been abandoned at 563 feet.

Lincoln County

Texas Pacific Coal & Oil Co.'s No. 2 Long, NW cor. SE SE, Section 31-17-5, had sand 4,175-96 feet and made 220 bbls.

Logan County

Welch, Acton & Brown's No. 1 Hall, NE cor. SE, Section 11-18-4w, has been plugged at 6,626 feet.

Osage County

Peters Petroleum Co. and Producers & Refiners Corp. has a rig on the ground for No. 1, SE cor. NE, Section 27-25-9. W. M. D. Gray made location for No. 1, C SE, Section 34-24-8. A. G. Oliphant and others moved a machine out for No. 1, CNL SW, Section 26-23-9. Devonian Oil Co. made location for No. 2, NW cor. SW SW, Section 30-21-10. Clement Oil & Gas Co. made location for No. 1, NW cor. SE NW, Section 23-20-10.

Kewanee Oil & Gas Co.'s No. 11, NW cor. NE NW NE, Section 3-26-6, Burbank Pool, made 250 bbls. from Burbank sand 2,748-2,820 feet. No. 12, NW cor. NE NE, Section 3-26-6, made 83 bbls. after a shot in Burbank sand 2,752-2,817 feet. Kay County Gas Co.'s No. 2, NE cor. SW, Section 22-24-7, had a maximum production of 1,736 bbls. for 24 hours from sand 2,897-99 feet. No. 3, SW cor. SE SE, Section 9-23-7, flowed 1,113 bbls. from Siliceous lime 3,082-86 feet. Devonian Oil Co.'s No. 1, NW cor. SE, Section 18-22-8, is dry and abandoned at 3,300 feet. Beacon Oil Co.'s No. 1, NW cor. SW SE, Section 32-21-11, has been abandoned at 2,600 feet.

Pawnee County

Privett Drilling Co.'s No. 1 Miller, SW cor. NE SE, Section 4-20-7, is dry and abandoned at 2,737 feet. Twin State Oil Co. is repairing the rig to deepen No. 3 Hughes, NW cor. SE, Section 12-20-7.

Stephens County

Harry Hanbury's No. 7 Taliaferro, SW cor. NW SW, Section 27-1s-8w, is drilling at 1,400 feet. Bgi Twelve Oil Co. is rigging up rotary tools at No. 6 Taliaferro, SE cor. SW, Section 27-1s-8w.

COWLEY COUNTY WELL DISAPPOINTS; GOOD WELL IN GREENWOOD POOL

By J. L. Dwyer
Staff Correspondent, Kansas Fields.

After another quiet week in the Kansas fields, the Lewis Production Co.'s well in Cowley County which created interest last week, is estimated at 50 bbls. daily on the pump. This well is No. 1 Pierce, SE cor. SW SE, Section 30-31-6, and it had the Bartlesville sand 2,908-77 feet. It was shot with 80 quarts and made 50 bbls. Its performance is rather disappointing, as it was believed to be a better well.

There was very little leasing activity reported during the week, with McPherson County the only region having any signs of life in this respect. There have been reports of blocking operations around Township 17-1w, but they were not confirmed.

In the Oxford Townsite Pool, Charles Noble has finally abandoned and plugged his No. 1 Townsite in Block 33.

North of the Virgil Pool of Greenwood County, the Darby Petroleum Co.'s No. 10 Schwab is an excellent well. It is located NE cor. SE NW, Section 30-22-13, and made 400 bbls. the first 24 hours after a shot of 180 quarts.

The Lost Springs district of Marion County has a failure and an extension. Braden & McClure's No. 1 Falks, NW cor. NW, Section 23-17-4, had chat 2,374-2,445 feet with a show of oil and is dry and abandoned at a total depth of 2,462 feet. Graham Brothers and the Gilliland Oil Co.'s No. 1 Nelson, NE cor. SE, Section 30-17-5, will probably extend the pool 3 miles southeast, although the intervening region can hardly be considered proven. This well had chat 2,294-2,380 feet, and is now making 30 bbls. on the pump.

Butler County

Murphy & Slater moved the rig out for No. 7 Maxwell, SE cor. NW, Section 31-24-4. Mathews and others built the rig for No. 1 Harsh, NE cor. SW, Section 5-24-8. Mohawk Oil Co. made location for No. 2 Palmer, NW cor. NE SE, Section 6-27-6. Garden and others' No. 1 Sluss, SE cor. SW NE, Section 6-27-6, was shot with 40 quarts in sand at 2,690-2,712 feet and made 200 bbls.

Coffey County

Sheedy and others moved a machine to the location for No 4 Hanna, C NW SW, Section 11-23-13.

Cowley County

Roth & Faurot's No. 1 Perkins, C SE, Section 18-31-5, is drilling at 385 feet. Marland Oil Co.'s No. 3 Graham, SE cor. SW NE, Section 15-32-4, an old well, is drilling deeper at 3,327 feet. Knox Drilling Co.'s No. 1 Mattison, Lot 7, Block 44, Arkansas City, Section 22-32-4, is rigging up to deepen from 2,840 feet. Lewis Production Co. has the rig up for No. 1 Cook, NE cor. SW, Section 18-32-6. Roth & Faurot are building the rig for No. 2 Smith, NW cor. SE SE, Section 22-33-4.

Elliott and others' No 1 Elliott, SW cor. SE NE, Section 17-31-5, has been shut in for 500,000 feet of gas in sand at 530-45 feet. Slick and others' No.

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KANSAS WILDCATS

BARBER COUNTY

Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w.. Drilling 2,870 ft.
G. W. Basom's No. 1 Grant, SW cor. SE SW, Sec. 13-31-3 ..... Drilling 789 ft.
Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-23-3w ..... Shut down 1,860 ft.
Rolland and others' No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w ..... Drilling 3,210 ft.
J. K. D. Shaffer's No. 1 Carter, C SE SE Sec. 2-33-13w.. Fishing 3,980 ft.
J. K. D. Shaffer's No. 1 Boggs, SW cor. NE SW Sec. 19-33-12w ..... Drilling 5,240 ft.
Skelly Oil Co. and others No. 1 Winter, CE half Sec. 17-31-12w ..... Cleaning out 3,550 ft., ready to drill deeper.

BARTON COUNTY

Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w ..... Shut down 3,346 ft.
Huffine and others' No. 1 Smith, NE cor. SE NW Sec. 17-19-11w ..... Shut down 5,130 ft.
McJilton and others' No. 1 Evanston, SE cor. NW Sec. 34-17-11w ..... Rig.

BUTLER COUNTY

Cress & Frank's No. 1 Bryson, NE cor. NE Sec. 26-27-5.. Drilling 2,869 ft.
Derby Oil Co.'s No. 1 Bughman, C SW SW Sec. 21-18-2w.. Rig.
Empire Gas & Fuel Co.'s No. 1 Semisch, NW cor. SE NW Sec. 4-33-7 ..... Dry and abandoned 2,732 ft.
La Robb and others' No. 1 Bronsenger, NE cor. SW Sec. 24-27-3 ..... Rig.
Mid-Kansas Oil & Gas Co. and others' No. 1 Harsh, NE cor. SW Sec. 5-24-8 ..... Rig.
Joe Ligge.t's No. 1 Travender, NW cor. SE Sec. 24-23-6 Drilling 2,530 ft.
White Eagle Oil & Refining Co.'s No. 1 Dixon, NE cor. SE SW Sec. 1-27-6 ..... Hole full of water 3,089-3,105 ft.; shut down.
M. F. Wilcox Oil & Gas Co.'s No. 1 Littell, NE cor. SE NW Sec. 21-29-4 ..... Collapsed casing 1,453 ft.; shut down.

CHASE COUNTY

Grieger & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7 ..... Shut down 2,025 ft.

CLARK COUNTY

Walker & Warner's No. 1 Mitchell, SW cor. NE Sec. 16-31-23w ..... Shut down 600 ft.

CLOUD COUNTY

Concordia Producing & Refining Co.'s No. 1 Murdock, SE cor. SE Sec. 6-6-4w ..... Fishing 3,590 ft.

COWLEY COUNTY

Allison & Fitzwilliams' No. 1 Shapland, NE cor. NW SE Sec. 20-30-6 ..... Shut down 790 ft.
Barnsdall Oil Co.'s No. 1 Russell, NE cor. NW SE Sec. 15-33-4 ..... Drilling 1,935 ft.
Derby Oil Co.'s No. 1 Seaman, NE cor. SE NE Sec. 32-30-3 ..... Drilling 2,802 ft.
John Herron and others' No. 1 Marshall, SW cor. NE Sec. 36-30-6 ..... Shut down 1,645 ft.
Meridian Gas Co.'s No. 1 Roselle, SW cor. SE Sec. 8-35-1.. Drilling 2,010 ft.
Otstot et al's No. 1 Volker, NW cor. NE Sec. 9-35-1.... Rig.
Harris & Hahn's No. 1 Gamble, C NW NW Sec. 17-35-2 ..... Shut down 1,400 ft.
S. B. Shawver and others' No. 1 Disser, NW cor. NW Sec. 10-34-3 ..... Drilling 2,540 ft.
S. B. Shawver's No. 1 Mullett, C NW SE Sec. 31-34-3.... Drilling 1,460 ft.
Vickers Petroleum Co.'s No. 1 Daniels, NE cor. NW Sec. 3-30-3 ..... Drilling 1,540 ft.

(Continued on Page 81)

Medlin and others' rig is being moved out for No. 3 Burk, NW cor. NE, Section 34-1s-8w. Snodgrass Oil Co. has the rig up for No. 6 Malernee, NE cor. NW, Section 34-1s-8w. Muse and others' rig is up for No. 1 Brown, SW cor. NE, Section 7-2s-7w.

Brannon & Fisher's No. 1 Maxey, SE cor., Section 19-1-8w, has been abandoned at 2,361 feet. Fisher & Rankin's No. 1 Callahan, CSL SE SE, Section 21-1s-8w, has been abandoned at 2,514 feet. Carter Oil Co.'s No. 8 Glass, CNL NE SE, Section 33-1s-8w, is dry and abandoned at 2,194 feet. Medlin and others' No. 2 Burk, NW cor. NE, Section 34-1s-8w, is flowing 150 bbls. from sand 1,678-79 feet. Mudge Oil Co.'s No. 6 Spears, SE cor. NE SE NW, Section 23-1s-5w, is dry and abandoned at 1,221 feet. Wirt Franklin Oil Corp.'s No. 1 Fobb, NE cor. SE, Section 12-2s-8w, has been completed for 170 bbls. in sand 1,524-26 feet.

Wirt Franklin Petroleum Corp.'s No. 1 Perkins, SE cor. SW, Section 12-1s-4w, has been shut in for 60,000,000 feet of gas in broken sands 2,372-3,001 feet. No. 4 Brittain, NW cor. SW SE, Section 12-1s-4w, had an initial production of 450 bbls. from sands 2,684-3,129 feet. No. 7 Apple Franklin, NE cor. NW NE, Section 24-1s-4w, has been completed for 950 bbls. in sands 2,545-3,256 feet.

Payne County

W. K. Mote and others made location for No. 1 Lamson, SE cor. SW, Section 32-18-5. Transcontinental Oil Co.'s No. 1 Powers, NW cor. SW NW, Section 10-18-5.

Tulsa County

Suppes and others' No. 5 Mackey, SW cor. SE SW, Section 34-19-12, is drilling at 1,700 feet. Glidden Oil Corp.'s No. 3 Riverbed, SW cor. NE NW SE, Section 15-19-11, made 20 bbls. from Hominy sand 2,105-22 feet.

Bryan County

Magnolia Petroleum Co.'s No. 2 Marshall, NW cor. SW, Section 26-5s-7, has been abandoned at 707 feet.

Carter County

Magnolia Petroleum Co. has erected the rig for No. 2 Winters, NE cor. SW SE, Section 19-1s-3w. The rig is also up for No. 3 Anderson, SW cor. NE NW, Section 23-1s-3w.

Roxana Petroleum Corp.'s No. 1 Carter, SE cor. SW SW, Section 14-1s-3w, made 200 bbls. from sand 2,560-80 feet. Simpson-Fell Co.'s No. 1 Winters, NW cor. SE SE, Section 19-1s-3w, made 235 bbls. from sand 2,850-84 feet. Humble Oil & Refining Co.'s No. 3 Ratliff, SW cor. NE SW, Section 20-1s-3w, had sands from 2,953 feet to 3,198 feet, total depth 3,312 feet and made 57 bbls.

Garvin County

Magnolia Petroleum Co.'s No. 1-A King, SE cor. NE SW, Section 31-1-3w, has been completed for 45 bbls. in sands 3,300-3,419 feet.

Muskogee County

D. L. T. Oil Co. has a machine at the location for No. 1 W. Bruner, NE cor. NW NW, Section 16-15-18. C. D. Bradley's No. 1 F. Young, NW cor. SE, Section 14-15-19, is spudding. DeWitt-Baldridge Oil Co. has the machine on the location for No. 1 A. Lee, NE cor. SE SW, Section 11-14-16. R. H. Kimsey has moved the machine out for No. 1 Sanders, SE cor. NE, Section 1-14-18. J. M. Nixon has the machine ready for No. 1 Scott, NW cor. NE NW SE, Section 13-14-18. J. Bramer's No. 1 Ross, SW cor. NW SE, Section 4-14-19, is drilling at 435 feet. A. E. Carder & Crittenden's No. 2 G. Crittenden, NW cor. NE NW NE, Section 6-14-19, is drilling at 70 feet. S. Epperson's No. 1, Lot 35, Block 1, Muskogee Townsite Pool, Section 6-14-19, is spudding. Hettick and others moved the machine out for No. 2, Lot 11, Block 16, Section 6-14-19. C. A. Lovelace, trustee's No. 1 Lot 11, Block 16, Section 6-14-19, is drilling at 460 feet. E. Mills and others' No. 1, Lot 9, Block 16, Section 6-14-19, is drilling at 75 feet. F. Walters' No. 1, Lot 15, Block 16, Section 6-14-19, is spudding.

E. Price's No. 3 A. Woodall, C SW SW, Section 20-15-16, has been completed for 1,000,000 feet of gas in sand 1,205-18 feet. Ark-Add Oil Co.'s No. 3, Lot 3, Block 14, Muskogee Townsite Pool, Section 6-14-19, is dry and abandoned at 860 feet. Hettick and others' No. 1, Lot 47, Block 10, Section 6-14-19, has been abandoned at 520 feet. Holt-Lammers' No. 1, Lot 3, Block 12, Section 6-14-19, is dry and abandoned at 850 feet. H. Skelly and others' No. 1, Lot 36, Block 13, Section 6-14-19, has been abandoned

(Continued on Page 90)

TRANSIT

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New Play Southeast of Luling Field

Austin Chalk Well, 1 Mile North of Luling Town, Leads to Renewed Interest. Bailed 50 Bbls. in Day

By B. D. Stevenson
Staff Correspondent, Southwest Texas

SAN ANTONIO, Tex., Apr. 16.—Memories of the Luling Field producing from the Edwards lime with a lot of sulphur water will result in some play in the near future around the Joe Bruner Austin chalk well on the Frank Davis farm 1 mile north of the town of Luling and 5 miles southeast of the Luling Field.

When Edgar B. Davis of the United North & South company brought in his discovery well producing from the top of the Edwards lime operators all held off because oil had no business being in the Edwards lime. They discovered their mistake too late. The field which it was thought would never produce more than about 5,000 bbls. to the acre has produced already over 30,000,000 bbls. to the acre. Austin chalk in Southwest Texas has never given up but a little oil. One geologist describes it as a blotter taking up ink. It takes up the ink but you can't get it out again. But Bruner's well which has no business producing oil bailed 50 bbls. one day. Tubing was set with packer and the well flowed about 40 bbls., through the packer failed to hold and the flow was both from inside the tubing and between the tubing and casing. It is in that condition now and is making oil by heads. The oil is about 37 gravity.

No Surface Indications

Surface geology where the well is located tells nothing. It is located in a "flats" 1 mile north and a little east of the town of Luling and there is nothing to trace out. Logs of wells around do not tell much. The Austin formation as shown by the cores is sandy at this place much more so than usually found. Geologists are at sea and companies are holding off somewhat and don't know what to think but, believe it or not, the oil is coming out of the ground, and that is a convincing argument with some. Land owners are asking for leases anything their consciences will permit but the highest known to have been paid is $60 an acre for a tract the nearest edge of which is about 2,000 feet from the well.

There are no immediate announcements of any new wells. Bruner had his No. 1 Thomas Wilson spudded in and down 30 or 40 feet before he decided to deepen No. 1 Davis which had been making a little oil at 2,557 feet. At that depth and producing from the Austin they were a little afraid to deepen for fear they would spoil it. It was deepened to 2,688 feet and is making more oil and is still in the Austin. No. 1 Wilson is 400 feet north and a little east from No. 1 Davis.

Golden West Oil Co. of San Antonio bought 104 acres out of the R. W. Malone tract of 154 acres. Sun Oil Co. owns the 50-acre strip next adjoining on the north and east of the Wilson tract on which is No. 1 Wilson test. Golden West company got the rest of the Malone lease. Pat Armstrong and associates bought the 100 acres nearest the well on the west out of the Emmet Martin tract. It is a little north of west of the Davis well and a 22.8-acre tract separates it from the Davis tract. Magnolia bought a lease out of the W. G. Jackson tract which adjoins on the southeast the Frank Davis tract on which Bruner's well is located. Sun Oil Co. owned its 50 acres before the Davis well found production. Lack of surface geology and with nothing disclosed from logs of other wells will cause the operators to "go it blind" in the development of the field and trust to luck.

Ina Oil Field

Material for the refinery of the Golden West Oil Co. to be erected in the Ina Field in Medina County was loaded at Cisco, Tex., last week and is expected to reach the Ina Field by the middle of this week. It consists of part of the Liberty plant at Cisco. Part of the same plant is going to Nuevo Laredo in Mexico opposite the city of Laredo in Texas and will be set up there. That going to Medina County is all lubricating plant material. Production of the Ina Field as at present from the 15 wells of the Golden West Oil Co. is ample to supply the 200 bbls daily which will be the capacity of the plant but as soon as a market is established for that much oil from the field additional wells will be drilled. It is expected that the refinery will solve the problem of the field and cause its development. The trouble before this has been that the oil had so much asphalt in it that it couldn't be gotten through a pipe line. Expectation is that the field will spread over at least 4 miles east and west and at least a mile north and south. R. P. O'Brien's well on the Nixon lease in Survey 531 is about 3 miles west. It is improperly completed but has produced enough oil to indicate that it could be made a commercial well. It is a little south of the Golden West Oil Co.'s wells. Production in all of the wells is had at a little less than 1,000 feet.

Laredo District

Cole Petroleum Co.'s No. 57 Benavides in Survey 412 in Webb County, 4 miles west of the Cole gas field, is flowing about 100 bbls. of oil. It had been making gas and spraying oil but stopped spraying oil and was found to be standing 1,400 feet in oil. Total depth is 2,331 feet. It is now flowing. Gas seems to be diminishing in this new field and oil increasing and every week makes it look more than ever like an oil field. Production of all the Cole wells is going to the Texas Mexican refinery at Laredo.

Still another of the new spots in the Laredo territory is showing more oil. In the Albercas grant field north of the Henne, Winch & Fariss and east of the Aviator, the Killam-Newton No. 1 Bruni, in Survey No. 65, is making about 70 bbls. of oil. This field, discovered some months ago as a gas field, with a trace of oil, has remained idle until recently. One of the old wells has been making considerable oil, as high as 7 bbls. an hour. The Killam-Newton is a new well.

There were quite a few new locations announced in the Laredo district the past week; more than enough to take the place of completions and raising the total number of operations a little. Most of them are in proven territory. Humble has not yet completed No. 7 Kohler, in its new pool, in Duval County, but is starting No. 8. No 7 is going on the pump and looks like a small well. It is the third producer in that spot. Moody Corp. is starting a new test in the Randado Pool and Magnolia company starting new tests in the O'Hern & Seacord Pool, and there are two or three new wildcats.

In the new Dale Field in Caldwell County Sun Oil Co.'s No. 4 Talley which extended the field 300 feet southeast came in for an initial production of 170 bbls. a day, but the Sun company will not make another location in that district at once. William F. Morgan is drilling another well in the field and The Texas Company is feeling its way drilling one well at a time.

In the Refugio Field the Houston Gulf Gas Co.'s No 1 Vance was a failure. At about 3,800 feet the casing was set too low. It looked for a time as though it was going to be the discovery well of a new sand. However, Rethford & Heep have started No. 1 Strauch and are drilling at 3,300 feet to test out the sand at 3,800 feet. No. 1 Strauch is north of No. 1 Vance and was drilled to 2,900 feet by Houston Gulf Gas Co. It is in the north edge of the field and when it failed to pick up the shallower sands they abandoned it. It is a north offset to No. 1 Vance and Rethford & Heep are carrying it on down.

COMPLETIONS

Caldwell County

Sun Oil Co.'s o. 4 Talley, W. C. Swearingen Survey, Dale Field, at 2,230 feet. Serpentine topped at 2,216 feet, initial production was 170 bbls. daily by heads.

Pat M. Armstrong's No. 1 Hardeman, Miles G. Dykes Survey, Luling Field, at 2,186 feet in top of Edwards 6 feet, bailed 50 bbls. in 24 hours.

Magnolia Petroleum Co.'s No. 8 F. M. Mercer at 2,216 feet has been completed in the Luling Field a 30-bbl. well; No. 20 Rios in the same field at 2,112 feet has been completed a 20-bbl. well.

Duval County

Magnolia Petroleum Co.'s No. 2 Benavides, corner of Blocks 144, 145, 196 and 197 in the Cole gas field in the southern extension, at 1,531 feet total depth, is a 12,000,000-foot gas well with 440 pounds rock pressure.

Jim Hogg County

Lightfoot and others' No. 1 Palacious, Survey 287, Block 13, at 1,653 feet has been abandoned.

Edwards County

Devil's River Oil Co.'s No. 2 Turney, Section 167, C.C.S.D.&R.G.N.G. Survey, has been abandoned at 443 feet with shallow oil showings at 440 feet.

Gonzales County

L. P. Unkel's No 3 Johnson, deep test in the shallow Slayden Field, has been abandoned, at approximately 1,500 feet.

NEW LOCATIONS

Bexar County

Schimmel Production Corp.'s No. 2 Rick, Survey J. Wilson, in the Somerset Field, is location 560 feet south of No. 1; No. 23 Koehler, Survey J. Wilson, Block 265 in the same field, is location 560 feet south of No. 6.

Caldwell County

William F. Morgan, Inc.'s No. 2 Osteen, W. C. Swearingen Survey, Dale Field, is location 750 feet to east line and 150 feet to south lines.

Comal County

George Kruger's No. 1 Witmore Decker, A. Gayetan Survey No. 194, is location in the southeast corner.

Duval County

Magnolia Petroleum Co.'s No. 1 Valdez, Survey 754, located 150 feet to south and west lines, is moving on.

Schott-Tafel's No. 2 A. M. Bruni, Survey 585, southern end of the Cole gas Field, is moving on 3,600 feet from northwest corner and 150 feet to west line.

Humble Oil & Refining Co.'s No. 8 Kohler, Survey 405, Humble-Reiter-Foster Field, is location 150 feet to east line and 450 feet to south line.

Gonzales County

L. P. Unkel's No. 4 Johnson is location for another deep test in the shallow

(Continued on Page 131)

OIL IN CALDWELL COUNTY WILDCAT; NEW TEST IN NORTHWEST DUVAL

By B. D. Stevenson

SAN ANTONIO, Tex., Apr. 16.—Trinity Drillers and others' No. 1 Miears in Caldwell County, 2 miles southwest of the Dale Field, set casing without cementing and bailed last Friday and got a little oil out of 30 feet of Serpentine. Total depth of the well was 1,999 feet. The well bailed down nearly to the bottom before there was any showing much of oil. The contract calls for a test to the Edwards lime and the well will go down to the contract depth. It is an interesting wildcat in that it has located another Serpentine bed with a little oil in it and, compared with other wells in that region, is running a little high so that it still has a further chance of finding oil in the Edwards lime. This well and the Dale Field are on almost a direct line with the trend of the Luling Field being due northeast of the Luling Field and about 13 or 14 miles from nearest Luling production. A fault line was proven some time ago running through the Dale territory from northeast to southwest, the fault line being disclosed by the difference in the depth to the chalk, the upthrow side being on the southeast and the downthrow side on the northwest. This with production at Dale and minor showings of oil in some of the wildcats drilled in the territory serves to keep this strip of country before the industry as a possible spot that might "pay off."

Northwestern Duval

Another attempt is to be made to get a well in the northwestern part of Duval County on the Schlessinger block of leases. Three wells drilled around there got more or less oil and in one of them the oil rose in the hole so far that it looked like it was sure to make a well for a time, but uncertainty as to where the top of the pay was resulted in setting the casing so that it made too much water with the oil. Schlessinger Oil Corp drilled two of the wells and Milo Trussell, trustee, one, and now Partee and others will drill the fourth. The location is in Survey 250, Block 16, 500 feet from the north line and 150 feet from the west line of the block. It is a little to the north of the other wells and in the direction of the Magnolia company's 4,000-foot small gas well about 3 miles away.

Outside of Partee and others' No. 1 Hahl, the only real wildcatting in the Laredo district is in Starr County. All other drilling around the Mirando fields is in spots where more or less oil or gas has been found and the efforts are centered on developing fields. Schott & Taffel are to make another effort in Survey 585 on the west edge of the O'Hern & Seacord Pool in Duval County. No. 1 got 2,000,000 feet of gas at 1,795-96 feet and drilled deeper into salt water and was finally abandoned at 2,735 feet. But it looks like there was some more gas out that way and the success operators have been having here and there with their gas wells turning to oil makes drilling in gas territory more interesting.

Starr County Tests

In Starr County, which up to this time has no production, there were 6 wildcat tests listed which is cut down to 4 by abandonment of the Clark & Woodruff well and the Harston well. Kusch Exploration Co.'s No. 1 Deyno and The Texas Company's No. 1 V. Guerra are

(Continued on Page 87)

Only WELDING could meet this EMERGENCY

Vacuum Reservoirs Electrically Welded with WILSON WIRE *in average time of 3 hours each*

AT the works of G. D. Peters & Co. Ltd., Slough, England, came a rush call for a battery of *vacuum reservoirs.* It was necessary that they be made from material on hand as immediate delivery was imperative.

Deep-pressed ends were used as heads. ⅛" steel plates were curved to the same diameter to form the bodies. All edges were welded with Wilson Grade No. 6* Welding Wire.

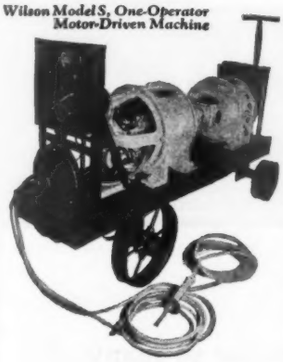
In an average time of 3 hours each these cylinders were welded into air-tight reservoirs to withstand 45 lbs. compressed air pressure per square inch. The total seam length per reservoir was 18½ feet. Only welding could meet this emergency. Riveting was out of the question.

*Pat. U. S. A. June 13, 1916 (two patents) and March 9, 1920; Canada, March 19, 1918.

* * * * *

Why not let Wilson Wire demonstrate for *you* its *uniformity,* its *smooth flowing* quality, its *economy?* There is just the *right* grade (analysis) of Wilson "Color-tipt" Welding Wire for each kind of metal, and every grade runs *uniform throughout* —every rod is exactly like every other rod of the same grade. Use Wilson Wire—the right grade for the job—and "the rest is up to the welder".

Wilson Model S, One-Operator Motor-Driven Machine



Above is shown one of the vacuum reservoirs welded by G. D. Peters & Co. Ltd., of Slough, England, referred to in this advertisement. Wilson "Color-tipt" Grade No. 6 was used.

Whatever the industry, there is the *right grade* of Wilson Wire for the particular metal *you* are welding. And there is a Wilson Model S Welding Machine that will exactly meet *your* particular welding requirements and operating conditions—a single or two-operator unit, gasoline-engine-driven, belt-driven or motor-driven, with capacities of 10-250, 10-300, 10-600, 15-500, 15-1000 amperes. Write today for bulletins describing Wilson Welding Machines, and ask for a sample of Wilson "Color-tipt" Welding Wire, indicating the kind of metal you wish to weld. There is no obligation.

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WILSON WELDER & METALS CO. INC., WILSON BUILDING, HOBOKEN, N. J.

WILSON

WELDING MACHINES AND WELDING WIRE

Nine Cooper Type-80, 170 B.H.P., four-cycle twins in one of the finest compressor stations in the Mid-Continent district.

COOPER

For the Better Stations—

It doesn't just happen that Cooper engines are chosen for so many of the very best compressor stations in the country. When a company is watching its cost of operation close enough to know that it pays to paint the compressor station floors it is also pretty sure to use engines which show the lowest operating cost. Neatness in a compressor station pays dividends and wherever you find a company looking after such details you are pretty sure to find them using Cooper engines.

THE C. & G. COOPER COMPANY, Mt. Vernon, Ohio

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Cotton Valley Adopts Spacing Plan

Bureau of Mines to Co-Operate in Survey of Conditions in Trinity Sand District. Locations for New Tests

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas.

SHREVEPORT, La., Apr. 16.—One well to each 40 acres has been adopted by Cotton Valley operators as spacing practice in developing the new 4,600-foot Trinity horizon in that pool and meanwhile the United States Bureau of Mines has been asked to send an engineer here to conduct a thorough survey of conditions with the view of recommendations concerning spacing, producing wells through tubing from the beginning, conservation of gas in the new pay and other technical matters. H. B. Hill, supervising engineer of the bureau with headquarters in Dallas, Tex., was here during the week subsequent to a meeting of interested operators and the department of conservation and said he will do what he can to have the bureau detail one of its experts for the survey.

Operators in this division have, in most cases, displayed a desire to work together and with the state for the conservation of interests but in this case this tendency proved to be more marked than ever and Cotton Valley operators will place at the disposal of the State and the Bureau of Mines all the data their experience has accumulated and also will pay the expenses of the bureau survey and report, the State Department being without necessary funds and what sort of appropriation the forthcoming legislature will afford for its uses being pure guess work—but if past experience of all such state departments is a criterion considerably less than required for the most efficient functioning.

Cotton Valley is unusually free from the embarrassment of many small tracts of under 40 acres held by different owners but at the same time the one well per "forty" proposal hit a snag immediately and there are one or two other cases which complicated matters. The legal committee of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association, got on the job immediately, however, and its study of the situation has developed a means of overcoming obstacles apparent at present which will not prejudice any interests. The one well to the "forty" was approved by the operators immediately on presentation of the suggestion, determining factors being the cost of drilling, the presence in the same pay of oil and gas, and the probably smaller area of the new horizon. Failure of Pine Island deep area to pay returns compatible with cost of development, due to wastage of gas, taught an expensive but profitable lesson of which the operators—most of whom are the largest holders of Cotton Valley—have taken advantage in their plans for developing the new pay in the Webster Parish Pool.

New Tests

Ohio Oil Co., Palmer Corp., Dixie Oil Co., Magnolia Petroleum Co., and Woodley Petroleum Co. already have made locations for new tests to the 4,600-foot horizon in addition to the half dozen or so wells that were already under way, with two of the Magnolia company's wells the next completions. On these two wells, No. 1 Cole, Section 27-21-10, and No. 1 D. G. Cox, Section 22-21-10, Magnolia agreed at the recent operators-department conference, to produce them through tubing from the start as an experiment in proving success or failure of the method. The Cole well cored shale at 4,685 feet, then some sand and shale again at 4,694 feet. It will core to 4,717 feet at which level, allowing for elevations, it will be at the same depth as the Ohio company's No. 38 Bodcaw.

New work and wells under way for the deep sand are: Humble Oil & Refining Co.'s No. 2-A Bodcaw, two locations south and east NW cor. SW, Section 14-21-10 (new); No. 6 Davis, Section 14-21-10, drilling at 1,665 feet; No. 2 Webb, Section 14-21-10, drilling at 2,186 feet. Louisiana Oil Refining Corp.'s No. 4 Lindsay, C NW NE, Section 22-21-10, rig up; Magnolia Petroleum Co.'s No. 1 Camp, Section 36-23-10, drilling 2,707 feet; No. 1 Cole, Section 27-21-10, coring 4,700 feet; No. 2 Coyle, C W half NE SE, Section 21-21-10, location; No. 3 Aarnes-Cox, 660 feet south and west NE cor. NW, Section 22-21-10, rig up; No. 1 D. G. Cox, Section 22-21-10, drilling 4,520 feet; No. 1 J. M. Mixon, Section 22-21-10, drilling at 4,350 feet. Ohio Oil Co.'s Nos. 39, 40 and 41 Bodcaw, Section 15-21-10, and No. 2 Hodges, Section 23-21-10, locations. Palmer Corp.'s No. 1 Mixon, Section 22-21-10, 12½-inch surface string cemented at 453 feet. Woodley Petroleum Co.'s No. 1 Lewis, Section 15-21-10, derrick, and Dixie Oil Co.'s location to be made in the SE SW, Section 15-21-10.

Discovery Makes 5,262 Bbls.

Meanwhile Ohio company's discovery well, No. 38 Bodcaw, Section 15-21-10, continues to perform according to early promises. With the gate cracked scarcely more than two rounds, if that far, it put 5,262 bbls. of 49.4 gravity pipe line oil into the tanks during the last 24 hours, flowing through a larger separator than the one it was flowing through 1-inch choke, when first opened when it did better than 3,000 bbls. What it would do if wide open is not known though estimates make it as large as 10,000 bbls.

This well may or may not have been an influence determining the experiment; success of deeper drilling in the Champagnolle Pool of Union County, Arkansas, may have been, but whatever it was that led to it, Sinclair Oil Co. has gone back to No. 7-A Berry, Section 33-15-15, Ouachita County, and will drill this old Smackover well deeper. Information as to how much deeper the company plans to drill is not available here, but with Eddy Jones having obtained more or less promising results in a 4,000-odd-foot test a year ago and Stewart and others having obtained small production at around 3,700 feet in the NE cor. of Smackover proven area, the impression is that the Sinclair will be drilled to at least 3,700 feet. It was a 400-bbl. producer when completed September 9, 1925, at 2,405 feet. There has been much talk in El Dorado during the past two or three months of a campaign of deeper drilling to be carried out in both El Dorado and Smackover fields. There have been two or three wells drilled below the known horizon in Lisbon—to 2,600 feet— which failed to pay off and this pool also may share in the new work, particularly since it has shown some decline during the past two or three weeks after holding practically stationary for some time. The deeper work in Champagnolle has already begun.

Week's Completions

The week's completions in the division's proven area were, as usual, mostly gas. Elm Grove registered a small well, Arkansas Natural Gas Co.'s No. 1 Van Hoose, Section 36-16-12, Bossier Parish, which made 5,500,000 feet, total depth 1,902 feet, and a small pumper. The latter was R. O. Roy's No. 7 Caplis, Section 25-16-12, 20 bbls. of clean oil at 1,538 feet. Cartersville gas field of northeast Bossier also had two completions. Louisiana Petroleum Co. completed No. 1 Peyton, Section 25-23-12, making 42,000,000 feet at 1,100 pounds I.R.P. from 3 feet of sand, total depth 3,079 feet, and Magnolia Petroleum Co.'s No. 1 Cason in Section 1-22-12, was finished as a 1,000,000-foot well at 3,091 feet. It had previously tested 2,000,000 feet of gas at 3,078 feet, was shut in for a week and deepened 3 feet in unrewarded expectations of better performance.

Greenwood gas district of Caddo Parish afforded a good well—one of the best in some time— in Magnolia Petroleum Co.'s No. 2 J. W. Furrh, Section 28-18-16, which gauged 11,172,000 feet of gas at 320 pounds I.R.P. in the Nacatoch at 888 feet. It offers quite some possibilities for the north end of the district in the shallow horizon in contrast to results obtained in the same pay in the southern part of the field.

Pittsburgh Oil & Development Co. finally abandoned No. 1 Herndon, Section 15-21-10, a Trinity test, on account of salt water and junked hole, total depth 4,017 feet. It was a salt water hole at 3,948 feet November 3, 1927, tested salt water in 7 feet of sand March 1 and was drilling deeper when the derrick collapsed while trying to pull drill stem.

H. F. Taylor made location, had derrick up and the hole drilled before No. 6 Urania, Section 19-10-2e, 100 feet west and 350 feet north SE cor. SW, ever got on the records as a dry hole at 1,598 feet.

In the Monroe district United Carbon Co. abandoned derrick for No. 1 Atkins, 5,940 feet east and 1,880 feet south NW cor., Section 27, in Section 26-20-5. Imperial Oil & Gas Products Co.'s No. 5 Stubbs, Section 13-19-3, Ouachita Parish, was a 3,000,000-foot gasser at 2,194 feet and Jordan Drilling Co.'s No. 1 Pereboom, Section 32-19-4, was the same size at the same depth.

Almost Doubled

Ohio Oil Co.'s No. 38 Bodcaw, Section 15-21-10, discovery well of the 4,600-foot pay, was given formal rating as a 3,660-bbl. producer at 4,683 feet with the bottom 12 feet in sand. It has since almost doubled that rate. Other Webster completions were in the Sarepta-Shongaloo gas district north of Cotton Valley. C. H. Lyons and others completed No. 2 Porter-Wadley, Section 29-23-9, making 6,000,000 feet of gas from sand at 2,726-32 feet; Magnolia Petroleum Co. completed No. 1 C. O. Bailey, Section 29-23-9, making 10,000,000 feet from 15 feet of sand, total depth 2,734 feet, and the Sun Oil Co.'s No. 1 Haines, Section 30-23-9, made 25,000,000 feet of gas from 12 feet of sand, total depth 2,721 feet. It was the Sun company's first completion in this part of the Mid-Continent for many, many months. Arkansas' sole registered completion was

(Continued on Page 127)

NEW PRODUCTION AT DEEPER LEVELS FEATURE OF CHAMPAGNOLLE DISTRICT

By D. H. Bancroft

SHREVEPORT, La., Apr. 14.—Champagnolle Pool in northeastern Union County is doing for Arkansas what the Cotton Valley Field in Webster Parish did last week for north Louisiana oil territory—proving new prolific production at deeper levels than had been prospected. The sole difference, so far as results obtained are concerned, is that where one of Cotton Valley's two new deep sand wells was a gasser, both of Champagnolle's discovery wells appear to be producers. It is believed that they are producing from the same group, the Trinity, if not the identical sand, or lens in that group. Pure Oil Co.'s No. 1 Gregory in Section 10-17-14, flowing at the rate of 2,200 bbls. on completion a week ago, did 1,838 bbls. on last 24-hour gauge, pipe line oil, and was followed early this week by Magna Petroleum Co.'s and Oilwell Corp.'s No. 1 Dumas, in Section 11-17-14, showing for 2,000 bbls. daily of 35.5 gravity oil on a 10-minute drill stem test. Total depth of the new producer is 3,239 feet with the bottom in 14 feet of broken sand. Four and one-half inch casing is being set at 2,200 feet and a standard test is expected to show much better performance. At its depth, the Dumas well is 31 feet deeper than the Pure company's No. 1 Gregory, a quarter mile southwest, according to correlation of elevations. Meanwhile Magna-Oilwell's No. 2 Rowland, in Section 14-17-14, has drilled 14 feet into a sand showing oil and is arranging for drill stem test at 2,972 feet.

Many New Locations

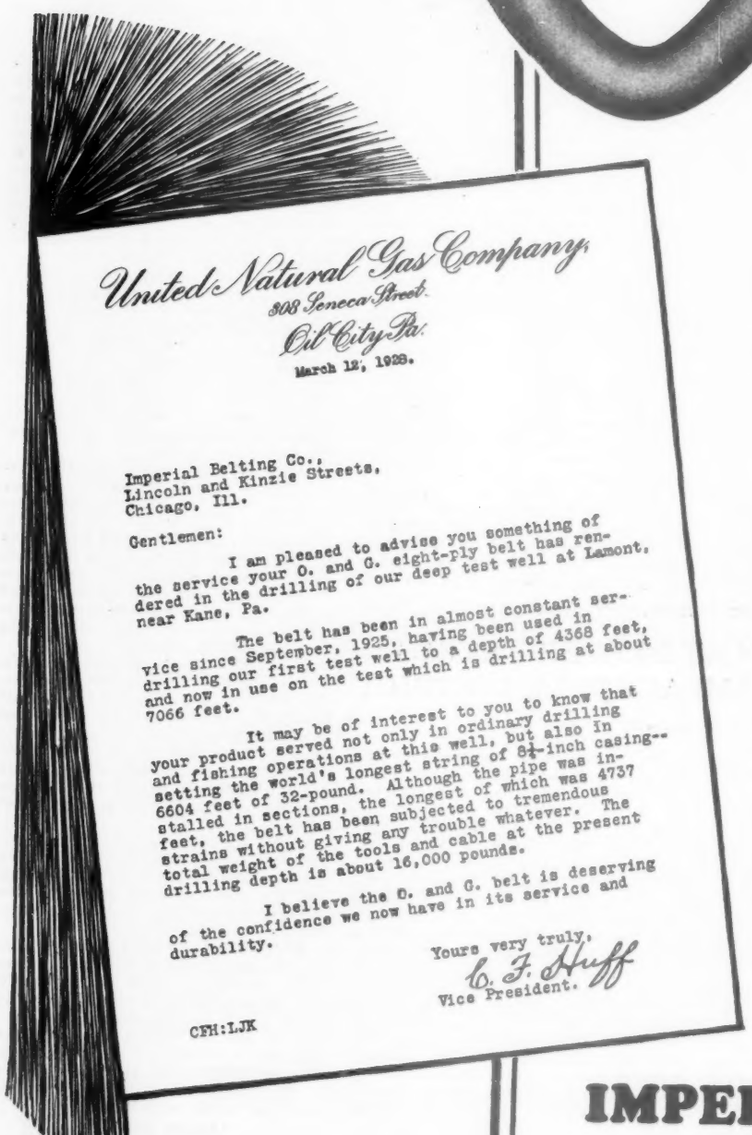
The Pure and Magna-Oilwell Corp. wells had the same immediate effect in Champagnolle that Ohio's No. 38 Bodcaw did in Cotton Valley, many new locations and arrangements for drilling deeper in wells now under way and is revamping old wells abandoned or finished as small producers at higher levels. Arkansas Drilling Co. has made locations for No. 1 Carroll, 300 feet south and west NE cor. SE NE, Section 1-17-14; for No. 1 Rowland, in the E cor. NE NE, Section 15-17-14, and for No. 2 Rowland, in the SE cor. NE NE, Section 15-17-14. O. W. Estes is rigging up on No. 1 Rowland, 200 feet south and east NW cor. SW NW, Section 14-17-14, which has been carried as a location for the past three weeks. H. M. Johnson is building derrick for No. 1 Kelly, 330 feet north and east SW cor. SE SE, Section 9-17-14. Ohio Oil Co. has derrick up for No. 2 Willis Pumphrey in the SW cor. SW NW, Section 2-17-14, and will probably deepen No. 4 Crain, 330 feet south and east NW cor. NE SE, Section 7-17-14, and No. 2 Goode, in Section 2-17-14. The first of these two has been a derrick since last November and the latter has been standing 400 feet in fluid, 50 per cent water, from 5 feet of sand at 2,054 feet since early in January. Rovenger Oil Corp. is rigging up to drill No. 1 Perdue, Section 10-17-14. Rushing and others' No. 1 Gregory, Section 11-17-14, is arranging to make drill stem test at 2,751 feet with the bottom 3 feet in sand and No. 2 Gregory in the same section, temporarily abandoned at 2,570 feet March 1, will be drilled deeper. Simon and others have rig up for No. 1 Jerry, Section 21-17-14, and Sirrall and others will probably deepen No. 1 Finley, in Section 12-17-14, temporarily abandoned three weeks ago on account of salt water at 3,179 feet.

Richland Parish

Interest in north Louisiana wildcat activities during the week centered in efforts to drown out Natural Gas & Fuel

(Continued on Page 128)

O AND G



United Natural Gas Company
308 Seneca Street
Oil City, Pa.
March 12, 1928.

Imperial Belting Co.,
Lincoln and Kinzie Streets,
Chicago, Ill.

Gentlemen:

I am pleased to advise you something of the service your O. and G. eight-ply belt has rendered in the drilling of our deep test well at Lamont, near Kane, Pa.

The belt has been in almost constant service since September, 1925, having been used in drilling our first test well to a depth of 4368 feet, and now in use on the test which is drilling at about 7066 feet.

It may be of interest to you to know that your product served not only in ordinary drilling and fishing operations at this well, but also in setting the world's longest string of 8¼-inch casing--6604 feet of 32-pound. Although the pipe was installed in sections, the longest of which was 4737 feet, the belt has been subjected to tremendous strains without giving any trouble whatever. The total weight of the tools and cable at the present drilling depth is about 16,000 pounds.

I believe the O. and G. belt is deserving of the confidence we now have in its service and durability.

Yours very truly,
C. F. Huff
Vice President.

CFH:LJK

What do these figures mean to you?

16", 8-ply Drilling Belt—over 30 months of service and still making hole—over 11,434 feet—besides other work and setting the "world's longest string" of 8¼" casing, 6,604 feet.

Probably you may never have a job like this. But—they do prove that O & G BELTS have the real "guts" to do more work than they were originally bought for.

This O & G BELT was "on the job" every day thru three tough winters and boiling hot summers. It certainly had to be tough and rugged. It had to hug the pulleys to swing over 16,000 lbs.—at this depth. Its double stitched, innerlocked construction and special impregnation made it last so long. Just as flexible today as when it was new.

Buy O & G BELTS!

IMPERIAL BELTING CO.

Manufacturers of High Grade Fabric Belting

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Stock carried in all fields by the "Oil Well" Stores.

BELTS

Seeking Deeper Domes on Gulf Coast

Discovery of Dewalt Dome in Fort Bend County Leads to Reworking Geophysical Surveys in Louisiana and Texas

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Apr. 16.—With very little important new production being added, which is being reflected in general production declines, Gulf Coast field operations the past week offered little of interest. Completions mostly were old wells worked over and deepened, the majority being small pumpers.

Due to the failure to bring in any material new production together with the steady decline in output of older fields, daily average production of Gulf Coast fields fell off 4,210 bbls. during the week to a low mark of 121,724 bbls. The decline was fairly general in all fields.

The principal activity at present continues in geophysical work with virtually all the larger companies in the field throughout southeastern Texas and southern Louisiana in the search for new salt domes. However, only some scattered leasing has been done but there is considerable talk of new leasing activity soon to develop.

The recent bringing in by the Humble Oil & Refining Co. of a good well on the Dewalt Dome in Fort Bend County has only increased the belief of operators of the Gulf Coast that there probably are many other salt domes to be discovered along the Gulf and in territory which already has been pretty well worked over.

Deep Seated Domes

That these domes exist is more than probable but more than likely they are extremely deep seated which would account for the failure so far to pick them up with the geophysical instruments. That reworking of the entire coastal territory with geophysical instruments will be done seems probable. In the case of the seismograph heavier shots may uncover the new domes.

This was true of Dewalt which district was passed up several times when instruments failed to determine any trace of a dome. However, the Humble company, convinced that something existed there, went in with 500-pound shots and picked up the dome.

It has been learned through experience on the Gulf Coast that the domes which are the deepest and consequently the hardest to pick up offer some of the best possibilities for big production. This has been demonstrated in southeast Texas at Goose Creek and Orange, the two fields which so far have not revealed the dome. That domes exist deepseated under each of these fields is taken as a fact but so far no geophysical instrument has given the slightest trace of the salt mass.

Operators doing geophysical work now are stronger in their opinion that there are other deep-seated domes similar to those which are believed to exist at Orange and Goose Creek and lately at Dewalt, which have been passed up but which can be brought to light with more intensive geophysical work.

Deep Test Abandoned

Among the abandonments during the week was one of the deep tests Yount Lee Oil Co. was drilling at Spindletop. This test, No. 54 Gladys City, ran into sticky shale and was given up at a depth below 6,400 feet. Yount Lee Oil Co., however, is drilling another deep hole, the No. 45 McFadden, which now is down below 6,600 feet.

South Liberty Extension

Interest continues to center on the mile north extension of the South Liberty Field despite the fact that developments there since the bringing in of the first well have been disappointing. The first well, The Texas Company's No. 1 Green, still ho'ds up on the pump although it is making some water. It is producing around 1,350 bbls. of which about 35 per cent is water.

The Texas Company's No. 3 Green, about 100 feet to the southwest, was drilled during the week to 3,003 feet, and in rock, still has not picked up any of the producing sands encountered by the three wells in this extension. Its south offset also still is producing. Abercrombie & Harrison's second well on the Lacour lease also has failed to pick up any of the sands and it has been drilled to 3,119 feet. The sands of the three wells, all within a 200-foot radius, were found at 1,970 feet, 2,280 feet and 2,814 feet but each well has a separate sand.

Sun Oil Co.'s second well, No. 2 Abshier, however, has found a sand at a total depth of 1,918 feet and as the week closed was preparing to swab. This is about 150 feet east of Sun's first well which came in flowing better than 400 bbls. from sand at a total depth of 1,970 feet. This company has started its third well, No. 1 Richardson, which is offsetting R. L. Young and associates' No. 1 Wood. The former is down 500 feet while the latter at last report only was rigged up. The Texas Company's No. 1 Pickett, offsetting to the west Abercrombie & Harrison's No. 2 Lacour, is drilling at 2,850 feet, it also having missed the sands.

To the north of the main field, The Texas Company's No. 8 Staiti, recently completed, and which turned considerable attention to that district, is holding up remarkably well, making 1,022 bbls. of pipe line oil daily. This extension district, which is from 400 to 500 feet north of the field, got another well during the week in Sun Oil Co.'s No. 1 Mitchell which came in flowing 200 bbls. daily from sand at 3,320-60 feet. The latter lease is just north of The Texas Company's Staiti lease. The Texas Company's No. 9 Staiti is drilling at 1,208 feet while No. 10 is a rig. Sun Oil Co.'s No. 3 Mitchell is drilling around 850 feet and Yount Lee Oil Co.'s No. 4 Mitchell at 3,200 feet. The latter company is starting another test, No. 5 Mitchell. All this South Liberty activity has got under way in the past six weeks. In the main field, Bashara Oil Co. has put its No. 5 Pickett on the pump for 10 bbls.

Now Spraying Oil

On the Allen Dome, Brazoria County, Roxana Petroleum Corp.'s No. 1 Random has started to make some oil, and is spraying about 64 bbls. daily through a half-inch choke. This test was bailed in from sand at 4,942 feet the previous week blowing dry gas at 1,170 pounds pressure. It was permitted to blow and the middle of the week started spraying oil which has gradually increased. This company's No. 4 Allen is drilling shale with an odor of oil at 5,025 feet.

On the DeWalt Dome, Fort Bend County, on which Humble Oil & Refining Co. recently brought in its first well, a location has been made for a second test, which is being rigged up. This is on the Brazos farm, 734 feet east from the northeast corner of the Humble's Hanner fee lease and 450 feet south of the north line of the William Little Survey. It is about 1,500 feet to the southeast of the No. 1 Sugarland, the discovery well. The latter is flowing pinched in around 300 bbls. daily pending the completion of a line from the field.

Pure Oil Co. has started deepening its No. 1 Lost River at Lost Lake, which failed to make a commercial well when tested at 3,604 feet, and is drilling sandy shale at 3,634 feet. This is the first test on this dome. Pure is rushing construction of a camp at Lost Lake preparatory to starting drilling several other tests there.

Humble Oil & Refining Co. has abandoned another Hockley test, No. 2 Texas-Warren, which found cap rock at 369-89 feet. No. 3 Warren is being rigged up. Hockley is one of the oldest domes in the Gulf Coast district but years of wildcatting has failed to find commercial production.

Cameron Parish

At East Hackberry, Cameron Parish, Calcasieu Oil Co.'s No. 3 Caldwell has found the pay sand and has cemented 6⅝-inch casing at 3,900 feet. No. 2 Caldwell, the discovery well, which is being deepened from the sand at 3,971-96 feet where it first came in flowing 1,000 bbls. daily, is drilling at 4,100 feet. No. 1 Dorion, which is 150 feet west of the discovery well, is drilling below 4,900 feet but so far has failed to find any oil showings. Louisiana Land & Exploration Co.'s No. 1-B Calcasieu Lake is drilling around 1,500 feet. Yount Lee Oil Co. also is drilling three other tests at East Hackberry, one of which already is down 3,000 feet.

At Sweet Lake, Cameron Parish, Pure Oil Co. still is working on its three wells there but so far has failed to bring them back in.

At Raccoon Bend, Austin County, Humble Oil & Refining Co.'s No. 1 Wilson is drilling shale and shell at 3,871 feet, and No. A-1 Grawunder sandy shale at 2,543 feet.

In the New Iberia Field, Iberia Parish, Louisiana, White and associates put No. 1 Bernard on the pump for 200 bbls. of fluid of which 5 bbls. is oil. This well originally was drilled by the Gulf Refining Co. but was taken over by local interests and worked over, being sidetracked at 2,556 feet and drilled to its former total depth of 2,790 feet.

Daily average production by fields for the week ending April 14 both in the Gulf Coast district and in Southwest Texas and East Central Texas follows:

Gulf Coast Production

Spindletop	36.126
Saratoga	1.110
Batson	1.434
Goose Creek	7.197
Sour Lake	3.389
Hull	11.354
Big Creek	1.628
Dewalt	200
Columbia	8.439
Humble	3.269
Pierce Junction	12.320
Blue Ridge	5.777
Markham	250
Orange	5.188
Damon Mound	825
Dayton	175
South Liberty	4.284
High Island	194
Moores Field	....
Boling	2.005
Nash Dome	1.400
Barbers Hill	600
Vinton	4.623
Starks	182
Edgerly	1.022
Evangeline	1.071
Lockport	3.749
Sweet Lake	....
Sulphur	1.187
Hackberry	1.105
Sorrento	....
Bayou Boullion	1.214
Anse La Butte	57
Miscellaneous	150
Total this week	121.724
Total last week	125.914
Decrease	4.190

Southwest Texas

Somerset	2.792
Lytton Springs	1.437
Dale	1.255
Luling	13.921
Miscellaneous	7.700
Total this week	27.105
Total last week	27.151
Decrease	46

East Central Texas

Mexia	7.369
Cedar Creek	585
Nigger Creek	725
Currie	498
Wortham	1.900
Richland	516
Powell	11.748
Total this week	23.341
Total last week	23.509
Decrease	168

Blue Ridge—Fort Bend County

Blue Ridge's sole completion of the week was Fort Bend Oil Co.'s No. 3-C

(Continued on Page 132)

ARE NOW READIER TO SHOOT WELLS IN THE MUSKEGON, MICHIGAN, FIELD

By Special Correspondent

MUSKEGON, Mich., Apr. 14.—One certain pumper was converted into a flowing well, another which had been practically given up as hopeless was made into a pumper and a third was abandoned as a failure in three holes completed during the week by the use of substantial shots in the Muskegon Field.

Only three wells previously had been shot in the field, including the first well drilled in Section 28 by the Muskegon Oil Corp. and operators had been somewhat reluctant about using the explosive in this territory. Now that six wells have been shot, three with success and three determining worthless holes, operators are more than willing to use a little "soup" to make a well.

In fact, A. S Cochran, who has drilled his No. 1 Taggart, SE SE Section 5, to a depth of nearly 1,700 feet, is about to use a 160-quart shot to make it a well. It is within 300 feet of the Johnson Oil Refining Co.'s No. 1 Harley Smith, which was expected to be developed into about a 40-bbl. pumper this week. The Johnson well was shot with 160 quarts last week and swabbed 40 bbls. of oil practically every since.

The Muskegon Oil Corp.'s No. 1 Herman Heinz, NE NE Section 8, Muskegon Township, developed a daily flow of about 200,000 feet of gas per day, or enough to put it in the gusher class, following a shot of 160 quarts exploded April 12. The well, which previously had been counted upon for a 50-bbl.-a-day pumper, is expected to flow at least 50 and possibly 100 bbls. per day.

The Citizens Petroleum Co.'s No. 1 Becker Brothers, NE SW Section 4, was shot for a stray sand at 1,937 feet and for the Traverse at 1,725 feet but filled with water and had to be abandoned The well had been drilled to 2,030 feet in an attempt to go down to the Dundee at about 2,200 feet without striking water. The hole filled with water, however, at about 2,030 feet, and an attempt to plug it back to the two shows higher up was unsuccessful.

During the past week swabbing and running of the tools in the most recent wells brought up their production slightly so that the field is now producing about 900 bbls. again from six flowing wells and two pumpers. In addition to these successful completions, there are two big gas wells, one with a flow of 5,000,-

(Continued on Page 90)

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Important Deep Test in Rincon Field

Long Beach Completions Dominating Factor at Present in California. Progress of the Conservation Movement

By L. P. Stockman
Staff Correspondent, California Fields.

LOS ANGELES, Calif., Apr. 14.—Activities in California during the past several weeks have been replete with a number of interesting occurrences, production and development work being exceptionally conspicuous as a result of numerous completions in the Long Beach Field and the curtailment and conservation measures recently undertaken in the Ventura Avenue and San Joaquin Basin fields where the elimination of gas waste and reduction of heavy crude oil production have been the predominating factors. Drilling operations during the past week resulted in the completion of several large flowing wells and although most of them are due to deep sand exploitation at Long Beach, Ventura Avenue, Rincon and other areas also contributed good producers. The Rincon Field made an especially good showing this week and although the two new wells finished in that district indicate the possibility of developing shallow commercial production the most important thing in this district at the present time is the test to be made soon of a hitherto untried lower sand by the Pan American. The importance of a deep zone in this field must not be underrated in as much as it is,a foregone conclusion that at least 25 wells would be carried down immediately if a new prolific sand is discovered and their completion would be reflected very substantially in state production which incidentally is still in excess of 600,000 bb's. per day in spite of the recent curtailment in the San Joquin Valley of approximately 40,000 bbls. daily.

Long Beach Dominant

Long Beach is the dominating factor in state production at the present time and this field will continue to control the local situation for several months as it is almost certain to exceed 175,000 bbls. per day with the peak not yet actually in sight. This field is one of the most remarkable districts opened up in California and although it has been abused as a result of intensive town lot drilling over a period of more than five years it is still the domniating factor in California production. The importance of this field at the present time is due to intensive development of a deep zone although the lower horizon now being drilled is not of recent origin. Its existence has been a matter of record for several years and although no one really appreciated its potentialities the list of deep zone completions appearing herewith is concrete evidence that it has been productive for a long time.

It is interesting in this connection that operators are unable to account for the fact that some of the biggest wells finished during the past several months have been located down on the flanks and out around the edge of the field while those nearer the apex of the structure have proven dismal failures but a little detailed study will reveal the reason for this unusual condition. Observation has led me to believe that this is due entirely to drainage and while none of the early wells took advantage of the maximum penetration available in the lower zone they went into it deep enough to get flush production of oil and gas and consequently when the present deepening campaign got under way the cream was all gone and nothing remained but the milk and in some instances this was skimmed milk. The Marine's No. 7 at Long Beach subsequently taken over by the California Eastern Oil Co., is one example of the drainage to which the apex of the structure has been subjected for several years as this well has produced in excess of 3,000,000 bbls. of oil since being finished back in 1923. The General Petroleum's No. 1 Black and Signal and the Shell's No. 3 Goddard and Nos. 1 and 2 on the Dobyns lease are also concrete illustrations that the deep zone has been productive for years.

DEEP ZONE COMPLETIONS AT LONG BEACH

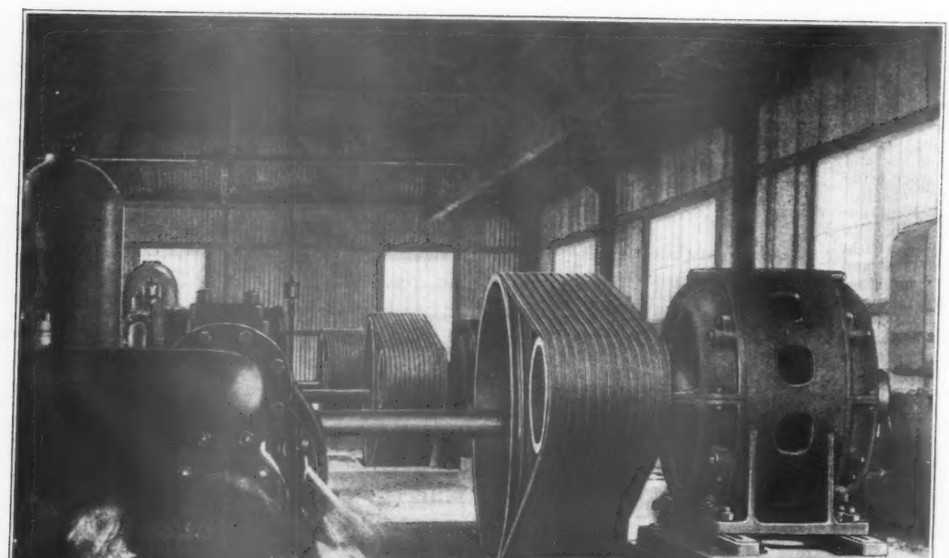
Company and Date Completed—	Initial Prod. (Bbls.)	Completion Depth
B. & H. Oil Co.—		
No. 2 Long Beach, February 6, 1928	410	5,932
Bolsa Chica Oil Co.—		
No. 4 Mutual, February 14, 1928	2,495	5,965
Bush-Voorhies—		
No. 2 Graham, November 25, 1927	1,048	5,708
California Eastern—		
No. 7 Marine, November 9, 1923	6,295	5,070
No. 11 Marine, September 27, 1927	585	5,370
No. 15 Marine, February 12, 1924	3,900	5,294
No. 18 Marine, January 29, 1924	2,600	5,243
No. 1 Masser, November 30, 1927	4,000	6,342
California Petroleum Corp.—		
No. 6 Davidson, October 4, 1927	2,029	5,671
No. 7 Davidson, March 27, 1928	2,260	6,641
No. 2 Fields, July 10, 1923	2,850	5,000
No. 2 Griswold Lease No. 1, February 27, 1928	1,445	6,261
No. 8 Harlow Kent, March 15, 1927	1,775	5,265
No. 4 Robinson, April 7, 1928	2,975	6,266
No. 4 Schilling, March 24, 1928	3,960	6,468
California Western Oil Co.—		
No. 1 H. & B., December 24, 1927	3,120	5,971
Campbell, E. B.—		
No. 1 Long Beach, November 13, 1927	4,000	6,022
Cypress Petroleum Co.—		
No. 1 Taylor, December 24, 1927	3,120	6,018
Dabney-Johnson—		
No. 2 Schneider, January 27, 1928	2,180	6,077
No. 4 Casenada, January 26, 1928	1,445	5,515
No. 6 Muriel, April 9, 1928	3,624	6,473
Doyle, J. J.—		
No. 1 Long Beach, April 9, 1928	3,400	6,268
No. 2 Long Beach, October 20, 1927	3,500	5,725
Edens & Wallace—		
No. 2 Long Beach, December 20, 1927	3,690	5,921
Edwards, L. T.—		
No. 1 Brayton, October 19, 1927	3,012	5,637
No. 3 Brayton, February 29, 1928	2,920	6,408
General Petroleum Corp.—		
No. 1 Black & Signal, June 8, 1923	3,061	5,432
No. 2 K. & H., January 24, 1924	2,580	5,500
No. 3 K. & H., June 16, 1923	2,775	5,395
No. 4 K. & H., December 2, 1923	925	5,518
No. 1 Signal, May 21, 1923	6,325	5,202
Graham & Loftus—		
No. 1 Butler, December 5, 1927	2,315	6,018
No. 2 Ligh burn, September 1, 1923	2,000	5,181
No. 3 Lightburn, May 30, 1927	1,971	5,370
Jergins Syndicate—		
No. 2 Jackson, November 25, 1927	2,950	5,810
No. 6 Municipal, August 15, 1923	4,000	5,049
No. 7 Municipal, October 13, 1923	1,700	5,005
McKeon Drilling Co.—		
No. 3 Ellis, January 30, 1928	1,792	5,615
No. 2 Evans, February 5, 1928	2,375	5,962
No. 1 McCrate, February 7, 1928	1,375	6,487
MacMillan, H. B.—		
No. 1 Long Beach, November 10, 1928	3,076	6,076
McMillan & Campbell—		
No. 1 Long Beach, January 10, 1928	1,749	6,346
McMillan Petroleum Prod.—		
No. 5 Long Beach, January 24, 1927	1,400	5,185
Pan American—		
No. 2 Anderson, January 20, 1928	525	6,200
No. 3 Anderson, December 5, 1927	650	5,976
No. 2 Chainey, October 18, 1926	1,372	5,389
No. 3 Chainey, November 1, 1927	3,450	5,521
No. 1 McKeon, January 31, 1928	915	6,084
No. 2 McKeon, January 15, 1928	1,370	6,150
No. 1 Pyle-Coffin, July 10, 1927	2,650	5,565
Plymouth Oil Co.—		
No. 1 Travis, November 17, 1927	2,100	6,076
No. 2 Travis, April 10, 1928	497	6,460
Richfield Oil Co.—		
No. 7 Booth, January 10, 1928	1,675	6,295
No. 8 Booth, October 24, 1927	4,825	5,960
No. 9 Booth, December 15, 1927	1,905	6,037
No. 1 Britsch, October 25, 1927	2,150	5,718
No. 5 Fee, January 15, 1928	1,510	6,217
No. 2 Freeman, March 6, 1928	2,715	6,289
No. 3 Fry, February 28, 1928	3,740	6,402
No. 9 Haas, December 17, 1927	675	5,810
No. 12 Haas, May 20, 1927	1,925	5,350
No. 14 Haas, January 12, 1928	3,270	6,160
No. 1 Hoffman, December 7, 1927	4,425	6,012
No. 11 Haas, February 22, 1927	2,390	5,280
No. 5 Delaney, January 20, 1928	1,510	6,217
No. 1 Kelly, November 16, 1927	4,098	5,760
Rio Grande Oil Co.—		
No. 1 Flower State, April 2, 1927	1,195	5,303
No. 2 Flower S ate, March 31, 1928	1,280	6,321
No. 1 Municipal Lease B, February 10, 1928	356	5,663
No. 2 Municipal Lease B, March 30, 1928	1,910	5,632
The Shell Oil Co.—		
No. 13 Alamitos, September 17, 1927	2,250	5,655
No. 24 Alamitos, March 22, 1928	2,080	6,475
No. 32 Alamitos, March 29, 1928	3,930	6,443
No. 2 Binkley, December 17, 1927	2,430	5,901
No. 3 Binkley, March 25, 1928	2,214	6,402
No. 7 Cresson, June 10, 1927	1,115	5,379
No. 8 Cresson, November 28, 1927	450	5,901
No. 9 Cresson, March 27, 1928	2,926	6,566
No. 10 Cresson, August 20, 1927	1,410	5,464
No. 11 Cresson, January 31, 1928	1,250	6,346
No. 2 Dobyns, August 8, 1923	3,500	5,450
No. 3 Dobyns, August 7, 1923	4,000	5,450
No. 3 Goddard, July 20, 1923	4,150	5,359
No. 4 Martin, April 4, 1928	1,850	7,060
No. 7 Nesa, March 28, 1928	1,105	6,706
No. 5 Patton Wilson, March 24, 1928	2,550	6,475
Superior Oil Co.—		
No. 2-A Crew, November 19, 1927	1,000	6,103
No. 3 Crew, March 11, 1928	3,870	6,410
No. 2 Swaffield, November 27, 1927	475	6,168
Union Oil Co.—		
No. 13 L. B. C., March 25, 1928	300	6,479

Deep Sand Completions

A check of the attached list of deep sand completions, which incidentally is not entirely complete, may prove interesting especially with reference to completion dates as it definitely indicates the fact that the deep sand below the 5,000-foot level has been productive for a number of years. This fact has been commented on several times during the past several years and when the present deep zone campaign got under way last September or October the writer was one of the first to appreciate the possibilities of this work and the following excerpt, which was written under date of October 29, 1927, and published in The Oil and Gas Journal, November 3, 1927, just about sums up the present situation: "It is a litt'e too early to say just how high Long Beach will go as a result of the rather general movement under way to participate in deep sand drilling but do not be surprised if the production of this field passed the 150,000-bbl. mark early next year. The oil is there and the high point to be attained depends primarily upon the amount of work undertaken and the rapidity with which it is carried to comp'etion. It is within the realms of possibility that daily production may even reach the 200,000-bbl. mark next summer if the major operators controlling acreage inaugurate an intensive deepening program. The Shell, California Petroleum, Richfield Eastern, Union, Superior, Rio Grande and several other large operators could easily add 100,000 bbls. to the field's daily production by additional new drilling or enlargement of present redrilling and deepening programs." This prognostication made over six months ago is just about to be fulfilled as Long Beach will pass the 150,000-bbl. mark within the next day or two and may reach the 200,000-bbl. peak predicted to occur this summer. Operators in this district are still starting new wells in large numbers and this work should have a tendency to prevent any abrupt drop following the high point although of course the trend must be downward after this point has been attained. There were 16 new wells spudded in during the past week and the Shell has just mapped 12 new locations which will undoubtedly be flagged within the next few days.

Curtailment Progress

The curtailment program which has just been carried to completion after a rather extensive survey, raises the total state artificial crude oil restriction to approximate'y 120,000 bbls. per day, the largest part of which is heavy crude for which the market is limited. The Standard heads the list with a curtailment of something like 35,000 bbls. per day, scattered over a number of fields. The Shell has about 25,000 bbls. per day shut in, the Associated 19,000 bbls., General Petro'eum 16,000 bbls., Union 14,000 bbls., Pan Amer'can 7,000 bbls., California Petroleum Corp. 6,000 bbls., Chanslor-Canfield Midway Oil Co. 5,000 bbls., and George F. Getty 5,000 bbls. This indicates the fact that the major companies have borne the brunt of this curtailment instead of penalizing the small independent producer. Kern River tops the fields with a daily curtailment of approximately 25,000 bbls., followed by Coalinga with 20,000 bbls., Midway-Sunset with 19,000 bbls., E'k Hills with 15,000 bbls., Ventura Avenue with 11,000 bbls., and the Brea Olinda, Mount Poso, Round Mountain, Santa Maria, Coyote, Lost Hills-Belridge and Inglewood fields with amounts varying from 1,000 to 10,000



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bbls. each. The total projected restriction throughout the State has not yet been attained and while there may be a further slight reduction in production it seems almost certain that Long Beach, Ventura Avenue and Rincon will offset the 40,000 bbls. of heavy crude shut in during the past few weeks.

The recent curtailment in heavy oil production in the San Joaquin Basin has helped the local situation very appreciably and prevented what might have become a very troublesome factor due to greatly decreased shipments of fuel oil during the current year to date. Not a single barrel of commercial fuel oil has left a California port for either the Atlantic Seaboard or Gulf Coast since last year and the inability of marketers to dispose of this surplus on the East Coast would have made it obligatory for California refiners to store large quantities of fuel and heavy crude in addition to the usual accumulation, which averaged approximately 10,000 bbls. per day during 1927. Export shipments of fuel oil are also below last year and may suffer a further displacement by foreign oil as it is reliably reported that the Shell interests contemplate the diversion of a part of its fleet of tankers from the California trade to Venezuela when refinery operations get under way in the latter area along about June. The Shell's new field in Venezuela will provide sufficient fuel oil to meet the South American demand and oil which has heretofore gone out of California to Buenos Aires and other ports on the east coast of South America will be displaced with Venezuela oil although local producers will probably continue to supply Chile and other West Coast ports.

Long Beach

Deep sand exploitation in the Long Beach Field resulted in the completion of seven wells during the past week and a check of present work indicates the probability that the production of this field is destined to reach a considerably higher level within the next 60 days. The Shell brought in four new wells and incidentally increased its daily production 8,570 bbls. Nos. 25, 26 and 28 on the Alamitos lease were completed in rapid succession early in the week and Nos. 27, 29 and 31 should be completed within the next 10 days. No. 26 Alamitos was the largest of the trio of new wells finished on the Alamitos lease by the Shell and this new producer, which came in under a natural flow doing 4,015 bbls. of 30.2 gravity oil and approximately 3,000,000 feet of wet gas daily from the 6,550-foot level, is still holding up in good shape. No. 28 Alamitos did not register as large an initial as No. 26 but it was nevertheless a very satisfactory completion as it tanked 1,640 bbls. of 29.6 gravity oil and 2,500,000 feet of saturated gas during the initial 24-hour test from 6,450 feet. No. 25 Alamitos came in flowing 1,165 bbls. of 31.2 gravity oil from 6,456 feet and this well, which was a penetration in the oil sand of a little better than 1,000 feet, is flowing under a constant pressure of 560 pounds on the casing. The Shell's latest completion is No. 7 Hutton, which has just come in flowing 1,750 bbls. of 30.1 gravity oil daily from the 6,574-foot level, but it is building up quite rapidly and will undoubtedly show a much larger production after it has cleaned itself out.

J. J. "Jack" Doyle, exalted ruler of Los Angeles Elk Lodge No. 99, successfully brought in his second big well in the Long Beach Field by redrilling and deepening No. 1 Clune from the upper to the lower zone at 6,268 feet and the rejuvenation process turned a 250-bbl. pumper into a 3,420-bbl. flowing well. Doyle's two producers, which were originally finished several years ago, have produced approximately 500,000 bbls. of crude and their present combined production of 5,000 bbls. of crude and 3,000,000 feet of natural gas daily is netting this popular Elk around $6,000 every 24 hours. The California Petroleum Corp. which has finished several good producers in the lower zone during the past few weeks, brought in No. 4 Robinson a few days ago and this new producer registered an initial of 2,972 bbls. of clean 30.4 gravity oil and 1,500,000 feet of wet gas daily from 6,266 feet. No. 2 Flower State and No. 2 Reedy Dubois are scheduled for completion within the next 10 days and if everything runs according to schedule the California Petroleum's production should show a substantial increase. Tom Bailes has just completed his first big well in the Long Beach Field doing 2,210 bbls. and 1,600,000 feet of wet gas daily and from present indications Tom seems to have shaken the jinx which has pursued him for the past several years. The Plymouth Petroleum Co. finished its No. 2 Travis early in the week at 6,460 feet but the initial production, 525 bbls. daily, was rather disappointing especially in view of the fact that over 900 feet of sand had been opened up. A detailed check indicates the probable completion of a number of new wells during the coming week and the daily production of this field will reflect their completion in a very substantial manner. Considerable new work is still being started and the respect which operators have for this remarkable district is evidenced by the mapping of 12 new locations by the Shell and several more by the California Petroleum, General Petroleum, Richfield and others.

Ventura Avenue

Although operators in the Ventura Avenue Field pinched in approximately 11,000 bbls. per day of light refining crude during the early part of March, a further curtailment has become necessary due to subsequent completions and the partial failure of the original program to entirely eliminate waste of natural gas. The curtailment measures initiated during the early part of last month were temporarily effective and while a permanent reduction of approximately 65,000,000 feet per day in the production of natural gas was anticipated this has failed of accomplishment. Several new wells were finished after the conservation work was undertaken at Ventura Avenue and these completions further complicated the situation by adding another 15,000,000 feet per day to the excess production of natural gas and while the projected readjustment contemplates a maximum reduction in gas production there is almost certain to be an excess production of natural gas in this field for several months due to the relatively large amount of development work under way as this will naturally result in completion of new wells from time to time.

The partial failure of the conservation measures undertaken in the Ventura Avenue Field to accomplish the desired results is purely a mechanical one and will be corrected immediately. It is a very difficult problem to arrive at an equitable curtailment in a field of this nature due to the excessively high gas-oil ratio and the engineers of the various companies working out the problems incidental to this work have encountered a number of complicated factors. It would be a relatively easy matter to arrive at an equitable reduction in the production of crude oil but the conservation of natural gas is exceedingly difficult due to the variable gas-oil ratios peculiar to wells in this field. The temporary reduction in gas production effected during the early part of March was accomplished by beaning down a number of wells instead of shutting them in entirely but this subsequently proved unsatisfactory as it had a tendency to build up pressures on wells which were not subjected to regulation. It is quite likely therefore that the projected readjustment will contemplate the pinching in of a larger number of producers instead of limiting this conservation work to a relatively few and the enlarged scope of operations will undoubtedly be more effective.

New Producer

The General Petroleum finished a new producer in the northern part of the Ventura Avenue Field during the early part of the past week and while the initial production was somewhat of a disappointment this is probably due to the fact that the well is flowing under a handicap in as much as there is approximately 1,100 feet of drill pipe in the bottom of the hole. The new well added this week was No. 2 Hisey, which tanked 592 bbls. of 30.1 gravity oil from 7,276 feet during the initial 24-hour test. There are several other new wells nearing completion in this field at the present time and all three of the major operating concerns, Associated, Petroleum Securities and Shell, should list new producers during the course of the next several weeks. The Petroleum Securities is scheduled to complete Nos. 2, 4 and 5 on the Orton lease in the southern part

(Continued on Page 87)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Associated, No. 1 Cypress, Potrero	34- 2-14	5,408	suspended
Associated, No. 2 Cypress, Potrero	34- 2-14	4,619	cemented
Smith & Carpenter, No. 1 Smith, Potrero	35- 2-14	5,282	suspended
World Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	3,772	suspended
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	4,440	hd. sd. drilling
Shell, No. 2 Mission, San Fernando	4- 2-15	122	sd. drilling
Andrews, Otis, No. 1 Lancaster, Los Angeles Co.	23- 8-13	2,120	hd. sd. drilling
Woods, D. H., No. 1 Lancaster, Los Angeles Co.	5- 7-10	Rig	suspended
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	4,410	hd. sd. drilling
Dominguez Ext., No. 1 Compton, Los Angeles Co.	27- 3-13	5,510	pipe trouble
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	5,765	testing
Shell, No. 1 Dupree, Hawthorne	29- 3-14	5,592	may abandon
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	413	sd. drilling
Scott & Currier, No. 1 Hawthorne, Los Angeles Co.	33- 3-14	140	suspended
White Behr, No. 1 Watson, Los Angeles Co.	21- 4-14	4,900	sd. sh. drilling
Buttrum, F. W., No. 1 Richfield, Orange Co.	36- 3- 9	4,515	fishing
Ohio Oil Co., No. 1 Anaheim, Orange Co.	9- 4-11	3,684	hd. sd. drilling
The Texas Company, No. 1 Santa Ana, Orange Co.	34- 4-10	....	location
Olympic Refg. Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	5,557	abandoning
Prairie O. & G., No. 1 Westminster, Orange Co.	13- 5-11	Rig	rigging up
Kneuper, A. D., No. 1 Seal Beach, Orange Co.	10- 5-12	Rig	rigging up
Getty, George F., No. 1 Seal Beach, Orange Co.	14- 5-12	4,970	hd. sd. drilling
Shell, No. 1 Stern, Orange Co.	22- 3-10	4,611	hd. sd. drilling
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	2,600	hd. sd. drilling
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,050	hd. sd. drilling
Davenport O. & G., No. 1 San Marcos, San Diego	30-12- 2	386	hd. sd. drilling
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	500	hd. sd. dr iling
Mills, J. P., No. 1 Pueblo, San Diego Co.	18-15- 3	2,725	hd. sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Bolsa Chica, No. 1 Kettleman, Kings Co.	30-23-19	3,502	perforating
General Pet., No. 2 Ochsner, Kettleman Hills	28-22-18	6,755	suspended
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	3,110	suspended
Monocline Dev. Co., Well No. 1, Kettleman Hills	7-21-21	4,308	suspended
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,100	suspended
Milham Explrn., No. 1 Kettleman, Kings Co.	2-22-17	7,125	sd. sh. drilling
Star Pet., No. 2 Canet, Ventura Co.	13- 3-23	5,975	hd. sd. drilling
Standard, No. 5 Saticoy, Ventura Co.	14- 2-22	794	sd. drilling
California Western Oil Co., No. 1 Elkins, Ventura Co.	5- 3-19	2,150	hd. sd. drilling
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	Rig	suspended
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	4,260	hd. sd. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	4,002	suspended
Shell, No. 1 Strathern, Ventura Co.	6- 2-18	4,700	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	175	sd. drilling
Hackworth, J. W., No. 1 Ojai, Ventura Co.	11- 4-23	2,311	hd. sd. drilling
Scott Pet. Co., No. 1 Rincon, Ventura Co.	35- 4-25	3,895	recemented
Shell, No. 3 Grubb, Ventura Co.	26- 2-22	Rig	rigging up
Shell, No. 1 Snodgrass, Ventura Co.	23- 2-22	....	location
Shell, No. 2 Berlywood, Moorpark	32- 3-20	6,900	hd. sd. drilling
Miley Oil Co., No. 1 Red Mountain, Ventura Co.	7- 3-23	980	suspended
McAdams, J. E., No. 1 Buttonwillow, Kern Co.	26-29-23	6,010	bl. sh. drilling
Milham Explrn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Explrn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Explrn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well
Milham Explrn., No. 4 Buttonwillow, Kern Co.	5-28-23	2,622	show. gas
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,291	hd. sd. drilling
Southern Calif. Gas, No. 1 Buttonwillow, Kern Co.	4-28-23	2,830	sd. drilling
Southern Calif. Gas, No. 2 Buttonwillow, Kern Co.	10-28-23	....	location
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	1,620	suspended
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-28	4,500	testing
Jackson & Chamberlain, No. 1 Bakersfield, Kern	19-29-28	601	sd. sh. drilling
O'Donnell, J. E., No. 1 Greenfield, Kern Co.	31-30-28	3,412	hd. sd. drilling
Superior Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,900	hd. sd. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	2,100	hd. sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,236	testing
Shell, No. 1 Mon Bluff, Kern Co.	3-28-28	4,200	suspended
North American, No. 1-A Delano, Kern Co.	5-25-26	5,004	br. sh. drilling
McVey, Max, No. 1 Shafter, Kern Co.	8-28-25	Mtl.	building rig
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-12-21	4,050	hd. sd. drilling
Barneyberg Oil Co., No. 1 Brown, San Luis Obispo	26-32-14	2,414	hd. sd. drilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	3,130	suspended
Richfield, No. 1 Carissa, San Luis Obispo Co.	15-29-17	3,300	br. sh. drilling
Union Oil Co., No. 1 Huasna, San Luis Obispo Co.	34-32-15	1,533	hd. sd. drilling
San Luis Syndicate, Well No. 1, San Luis Obispo	29-31-15	2,901	sd. sh. drilling
Sequoia Oil Co., Well No. 1 San Mateo Co.	13- 7- 5	1,508	hd. sd. drilling
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	5,906	fishing
Shell, No. 2 Cowell, San Mateo Co.	8- 6- 5	....	location
Shell, No. 1 Butts, San Mateo Co.	16- 6- 5	2,584	hd. sd. drilling
Shell, No. 1 Mossi, Petaluma	8- 5- 6	1,704	hd. sd. drilling
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	142	sd. drilling
Thomas & Hammill, Well No. 1, Alameda Co.	16- 3- 3	1,070	water trouble
Tepesquit Oil Co., Well No. 1 Santa Barbara Co.	3- 9-32	1,960	hd. sd. drilling
Becker, Geo. F., No. 1 Summerland, Santa Barbara	33- 4-25	3,045	testing
Twin State Oil, No. 1 Modoc, Santa Barara Co.	20- 4-27	3,214	hd. sd. drilling
Fort Wayne Synd., No. 1-A Goodcell, Madera Co.	22-10-17	....	location
Continental Oil Co., No. 2 Smith, Colusa Co.	31-18- 4	4,300	clean. out.
Colus Oil Co., Well No. 1, Colusa Co.	31-15- 4	374	hd. sd. drilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 4	348	sd. drilling
Marland Oil Co., No. 1 Bradley, Monterey Co.	32-24-11	2,780	hd. sd. drilling
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,110	hd. sd. drilling
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,031	hd. sd. drilling
Tuck, J. W., Well No. 1, Santa Clara Co.	9- 8- 1	262	sd. sh. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This Week	Daily Average	Total Last Week	Daily Average	This Year to Date	Same Time Last Year
Crude oil	184,110	26,301	78,452	11,207	1,778,511	2,541,416
Fuel oil	.. ...	.....	.....	.....	.....	2,964,021
Diesel and gas oil	....	....	62,065	8,866	511,804	1,173,295
Gasoline	211,837	30,262	312,754	44,679	2,952,886	2,386,095
Coastwise—						
Crude oil	471,812	67,402	201,614	28,802	4,952,684	8,233,601
Fuel oil	480,700	68,671	309,881	44,269	5,186,441	4,029,388
Diesel and gas oil	16,947	2,421	.....	.....	347,651	67,969
Gasoline	218,554	31,222	270,454	38,636	3,395,834	2,594,076
Kerosene	.....	.....	.....	.....	22,865	43,103
Tops	.....	.....	.....	.....	171,566	.....
Exports—						
Crude oil	.....	.....	74,118	10,588	598,301	1,168,689
Fuel oil	566,396	80,914	361,703	51,672	7,127,199	8,114,472
Diesel and gas oil	37,230	5,319	181,332	25,905	855,848	370,393
Gasoline	65,000	9,286	127,805	18,258	1,251,538	532,995
Tops	.....	.....	.....	.....	.....	227,204
Kerosene	.....	.....	.....	.....	1,209,237	872,487

TANKER SHIPMENTS FROM SAN FRANCISCO AND GULF COAST PORTS

Diesel and gas oil	....	....	.....	.....	342,425	225,103
Gasoline	152,811	21,830	.....	.....	563,277	811,430
Lubricants	.....	.....	.....	.....	138,769	11,970
Coastwise—						
Fuel oil	.....	.....	150,011	21,430	1,048,521	1,885,240
Diesel and gas oil	.....	.....	1,467	210	87,986	134,308
Gasoline	58,796	8,399	42,385	6,055	881,838	1,409,700
Kerosene	.....	.....	4,902	700	73,223	30,674
Exports—						
Crude oil	.....	.....	.....	.....	25,029	.....
Fuel oil	56,918	8,131	.....	.....	589,980	497,227
Diesel and gas oil	.....	.....	.....	.....	10,400	.....
Gasoline	.....	.....	78,747	11,250	1,219,412	1,301,722
Kerosene	.....	.....	.....	.....	282,102	452,695
Lubricants	.....	.....	.....	.....	....	9,120

Wildcats Planned in Rocky Mountains

Two in Twin Mounds Area, New Mexico. New Locations in Utah. McCallum Dome Well Cleans Out Bridge

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Apr. 14.—A number of wildcats scheduled for drilling this summer in the Rocky Mountain area are getting under way in districts where weather conditions are favorable and within a month or two a considerable increase in activity is expected. In New Mexico, George F. Getty, Inc., has made two new locations in the Twin Mounds area 10 miles southeast of Artesia in the vicinity of the three producers completed recently, which opened a new pool The Marland Oil Co.'s No. 1 Eaves, 2 miles east of the Texas Production Co.'s Rhoades well in southeastern Lea County, is shut down for orders at 2,843 feet, 253 feet in the lime. The Midwest Refining Co.'s No. 1 State, in Lea County, had more gas at 2,887 feet followed by another fishing job. The Union Oil & Mining Co 's well in San Juan County, tested 4,681,000 feet of gas.

In Utah the final location has been made for the Utah Southern Oil Co.'s test on the Salt Valley anticline, and the Navajo Petroleum Co. has made its location for a test on the Cisco Fold in Section 2-20-21, in Grand County. The Crystal Carbon Co. is completing a gas well in the Dakota on the Cisco structure.

The Continental Oil Co.'s discovery well on the South McCallum Dome in Jackson County, Colorado, has cleaned out the bridge and the gas flow has increased and some oil is showing with the gas, but the horizon will be shut off to make a test of lower sands. A deep test in Yuma County, Colorado, will be drilled by the Etmyre Syndicate 8 miles west of the Kansas line. The Texas Production Co. is deepening some of its old Tow Creek Dome wells in Routt County, and one of these has found oil in a lower horizon The Government's oil shale plant at Rulison will resume operations June 1. A 135-bbl. well in Florence Field was completed by Raddatz, Vogel & Travis, and another has encountered the pay.

In Wyoming, there was one completion in Salt Creek, a small producer in the first Wall Creek, and several of the Oregon Basin wells are drilling in with holes full of oil. The California Co.'s deep test in Uinta County, on the Muddy Creek Dome, has commenced spudding.

New Mexico

Southeastern New Mexico had very little outside of the regular routine to offer in the way of news the past week. No completions were reported, but several new locations were announced. George F. Getty, Inc., has made two new locations in the Twin Mounds district 10 miles southeast of the Artesia Pool, where it recently completed three producers. No. 3 Rawson, in the SE cor. SW Section 14-20-29, is located half a mile due west of No. 1 Rawson, the first test drilled by these interests, but which was abandoned on account of a bad hole after having a good show. No. 4 Dooley, 660 feet east and 210 feet south of center of Section 23-20-29, is located a little more than half a mile southwest of No 3 Dooley (formerly known as No. 2 Dooley) the latest completion, which swabbed 430 bbls. the first 24 hours, and approximately the same distance northwest of No. 1 Nicholas. Both of these wells will feel out the producing area on the west side of the new pool as disclosed by the wells so far drilled.

The Texas Production Co. has made a location for its No. 1 Compton, NE cor. SE Section 9-16-31, 3½ miles northwest of its No. 2 Robinson in the NW SW Section 25-16-31, which made 98 bbls. initial from a total depth of 4,100 feet, after being tubed. Operations have been held up, however, and it is not certain that this location will be drilled at this time. Gates, Holman & Rehn's No. 1 Murdock, Section 7-21-28, is drilling below 1,800 feet. Levers & Carper's No. 6 State, SW NW Section 3-18-28, is drilling at 700 feet. R. D Compton's No. 1 Vandergriff, NE SE Section 8-18-27, is running casing. Compton & Smith's No. 1 State, Section 2-18-27, is reported abandoned without plugging at total depth of 680 feet. Hammond and others' No. 1 Miller, NW SE SW Section 15-16-25, northwest of Artesia and west of the Pecos River, is reported to have 1,200 feet of fluid in the hole from a depth of around 1,825 feet, and efforts are being made to plug off salt water showing at the bottom of the sand to make a test of the oil horizon. Snowden & McSweeney's No. 1 Lawrence, NW cor. Section 35-20-29, is drilling at 1,350 feet in anhydrite. The base of the salt was found at 1,220 feet and the 12½-inch was set at 1,250 feet. The Marland Oil Co.'s No. 1 Gardner, NE cor. SW Section 34-23-31, is drilling at 395 feet.

Lea County

In Lea County, the Gypsy Oil Co.'s No. 1 State, SW cor. SW Section 34-21s-36, is drilling water well. Marland Oil Co.'s No. 1 Sholes location in the NE cor. SW Section 24-25-36, has been abandoned and another made in the NW cor. SW Section 19-25-37. Same company's No. 1 Eaves, SW NE Section 19-26-37, 2 miles west of the Texas Production Co.'s No. 1 Rhoades, is shut down for orders at 2,843 feet. It is reported to be 253 feet into the lime. Same company's No. 1 Roberst, SW cor. Section 20-23-35, is drilling at 1,000 feet, and its No. 1 Seideman, SW cor. Section 4-25-36, is repairing engine at 782 feet. Cecil Bordages' No. 1 Hughes, C S half Section 27-19-38, is sidetracking a prong after drilling around the tools which were lost a month ago when the hole ran into gas at 3,110 feet. The Midwest Refining Co.'s No. 1 State, NE cor. Section 9-19-38, is drilling by tools. Total depth is 2,887 feet, at which depth a pocket of gas estimated at 5,000,000 feet, was encountered. This test had gas at 2,880 feet which caused a fishing job and after the hole was cleared it went 7 feet deeper again to become tied up in the same manner. The Maljamar Oil & Gas Co.'s No. 2 Beardsley, SE NE Section 15-17-32, is shut down at 4,296 feet waiting on shooter's line. It has been delayed for some time by a bad fishing job, and, unless efforts now being made to recover tools are successful, it may be necessary to abandon the hole.

San Juan County

In San Juan County in the northwestern area, the Co-Ne-Mo Oil Co.'s No. 1 Viles, SE SE Section 28-29-11, is drilling at 600 feet. San Juan Petroleum Co 's No. 1 Umbenhour, SE SW Section 9-29-13, is waiting for cement to set at 2,914 feet. This test is to be continued to the Mesa Verde sands. The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW SW, Section 29-28-10, is drilling at 175 feet after setting the 12-inch at 85 feet. The Union Oil & Milling Co.'s No. 2 Pine, SE SW Section 8-29-9, was shot with 200 quarts at 2,852-2,922 feet, and is cleaning out to test. It was drilled to 4,285 feet and plugged back. A. Johnson, trustee's, No. 1 Viles, SW Section 34-29-11, which was reported completed as a gas well at 2,002 feet, tested 4,681,000 feet in 24 hours, according to L. H. Wilkie's scout report. It was previously estimated at 2,000,000 to 3,000,000 feet. Continental Oil Co.'s No. 17, Section 2-29-19, Rattlesnake Dome, is drilling at 4,781 feet.

In Valencia County, the Acme Deveopment Co.'s No. 1 Santa Fe Railway, SW NW, Section 27-7n-4w, is drilling at 2,445 feet in red sandy shale.

In McKinley County, Jenkins Oil Co.'s No. 1 Hannett, NW SE NE Section 1-16-9, East Vogt structure, is reported drilling at 1,500 feet after setting the 6⅝-inch casing at 1,470 feet to make a water shutoff. Reliance Oil Co.'s No. 1 Valentine, SW SW SW Section 15-17-9, Hospah district, is drilling in a 4-inch hole at 1,450 feet. Benedum-Trees' No. 1 Santa Fe Railway, NE NE NW Section 19-17-9, is underreaming to lower 6⅝-inch casing. Total depth, 2,750 feet. H. L. Williams and others' No 2 Pettitt, SW SW SE Section 30-18-8, Hospah Dome, is bottomed at 1,795 feet, and underreaming the 6⅝-inch casing at 1,760 feet to set at 1,790 feet. Water with a slight show of oil was found on top of the Hospah sand. Inland Oil Co.'s No. 1, NW NW NW Section 22-18-10, is drilling at 1,300 feet after replacing Keystone machine with heavier rig.

Utah

The Utah Southern Oil Co. has made final location for its test on the Salt Valley structure near Thompson, in Grand County, same being 1,300 feet south and 250 feet west of NE cor. SE Section 13-23s-20e. Tentative location was in NW cor. SW Section 18-23-21. This is to be a joint test with the Moab Consolidated Oil Co. The cellar has been dug, road completed, and camp is now being built and material moved to location. Spudding is expected to commence about May 1. Same company's No. 1-A J. L. Shafer, NE Section 36-26-20, Cane Creek Dome, is drilling at 807 feet in very hard red lime. Western Venture Corp.'s No. 1 Spahr, Section 8-5s-21e, Dog Valley structure, Uinta County, is drilling at 175 feet. Same company's No. 1 Krumvieda, Section 6-5-21, Vernal monocline, is waiting for cement to set at 753 feet. Midwest Exploration Co.'s No. 1 Early, Section 13-4s-6w, Duchesne County, is drilling at 3,672 feet in gray limey shale. The Texas Production Co.'s No. 1 Shipley, Section 5-27-14, Wayne County, is still working with casing in an effort to recover three strings of tools in the hole. Total depth is 2,885 feet.

Continental Oil Co.'s No. 1, Section 23-43-22, Boundary Butte Dome, San Juan County, is drilling at 3,760 feet. Crystal Carbon Co.'s No. 6, Section 14-20-21, Cisco Field, was drilled into the Dakota sand the past week at 2,265 feet and is being completed as a gas well. Maud Ellen Oil Co.'s No 1, Section 28-3s-21, Neal Dome, Uinta County, is drilling at 748 feet. Diamond Oil Co.'s No. 3, Section 29-8s-5e, Utah County, is drilling at

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TURNER VALLEY'S DEEPEST TEST ABANDONED AT 6,600 FEET

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 14.—In the Turner Valley Field, southwest of Calgary, the British Dominion Oil Development Corp.'s deep test in LSD 4, Section 5-20-2w5, has been abandoned at 6,600 feet, after having established a new record for deep drilling in Canada. The British Dominion well is 635 feet deeper than its nearest Canadian competitor, the Henry L. Doherty Co.'s No. 2 deep test in Prince Edward Island, which was abandoned last year at 5,965 feet; and is 1,230 feet deeper than Great West Oils' No. 1 which is the next deepest test in the Turner Valley. In the British Dominion well the 6-inch casing had been carried practically to the bottom. On reaching the 6,600-foot depth the company decided that as continuation of the test to greater depths would be exceedingly expensive and there was no immediate prospect of production, it would be better to abandon the hole and make a new location.

British Dominion's No. 1 was spudded in June 9, 1926, and has been drilling practically without interruption ever since. No serious drilling difficulties were encountered. Throughout the test was in charge of Mart and Millard Hovis.

The British Dominion was located somewhat east and south of the Royalite No. 4 gusher, but near enough to justify the hope that the crude naphtha horizon in the Madison lime would be reached at a reasonable depth. While Royalite No. 4 got its production at 3,740 feet, British Dominion, nearly 3,000 feet deeper. had not yet got the top of the lime. The British Dominion log is markedly different from that of Royalite No. 4. It is still uncertain whether this was due to a complete overthrust at this point, or whether the formations southeast of the Royalite No. 4 dipped at an extremely acute angle. In nearly all the Turner Valley producers, definite markers have been found, including grit beds, red beds, green shales and coal seams; but all these were notably absent from the British Dominion's No. 1. At one point samples were positively identified as Kootenay, but lower down Dakota samples were identified, and still lower the drillers got samples which looked very much like the Belly River shales. This is a complete reversal of the normal sequence in the Turner Valley Field, and lends plausibility to the theory that a complete overthrust occurs at this point.

The casing is now being pulled from British Dominion's No. 1, as there are some 400 tons of casing in the hole the job will take probably five or six weeks. The company has located No. 2 test in N half, LSD 6, Section 12-20-3w5, on acreage of the McDougall-Segur Exploration Co. No. 2 location is about midway between the McLeod Oil Co. and New McDougall-Segur Oil Co.'s producers, and is regarded as proven. The British Dominion Oil Corp. has retained sufficient funds to complete its second test. No. 2 will spud in the latter part of May.

Making 250 Bbls.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, showed for the last 14 days of March an average daily production of 250 bbls. of crude naphtha. The well is making 19,000,000 feet of wet gas, approximately the same wet gas production as Royalite No. 4 gusher; and the first day in production it made 361 bbls. of crude naphtha. At present, owing to the danger of plugging, due to

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New Cow Run Pool, Calhoun County

Well Makes 50 Bbls. Wayne County, W. Va., Has Big Lime Producer Making 4,000,000 Feet of Gas and Spraying Oil

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Apr. 16.—During the week the number of good wells completed in part compensated for the smaller number. The deep sand territory furnished most wells and most new production. The West Virginia fields had but one rather important completion and may lead up to the development of a shallow sand pool. Nevertheless, the fields as a whole completed more gas wells than oil producers. Nothing could be more welcomed than the discovery of a new pool as spring approaches, a time when operators like to get busy. If such discovery is made the wells to stimulate operators will have to be larger than the present general average.

Many of the larger operating companies have been almost totally idle for a number of years, drilling only when and where it was absolutely necessary. Lease lines have to be protected as well as the expiration of titles to leases.

Best Completions

All but two of the good producers completed were in southeast Ohio. In the NW of Section 21, Harrison Township, Perry County, H. L. Stewart and others completed and shot in the Clinton sand a test on the Floyd Springer lot. The well flowed 145 bbls the first 24 hours.

In the same section, David L. Melick, trustee, completed and shot in the Clinton sand a test on the Ralph Kinnan lot. It produced 135 bbls. the first 24 hours. It is inside of defined limits and in a section that has been furnishing good producers. Good producers in this section are very acceptable for the reason that the producing formation is reached at a depth of about 3,545 feet.

In the same section the Famous Oil & Gas Co. completed in the Clinton sand a test on the A. R. Vosper lot which flowed 240 bbls. the first 24 hours after shot. In the southeast quarter of the same section, the Kachelmacher estate completed in the same formation a test on the Muskingum Pottery Co.'s farm. It produced 55 bbls. the first 24 hours after shot.

Licking County

In Section 16, Hanover Township, Licking County, the Hope Construction & Refining Co. completed a second test on the J. E. Shaw farm which produced 25 bbls. the first 24 hours after shot in the Clinton sand. In the same section the Hope Construction & Refining Co. completed in the Clinton sand a second test on the J. W. Shaw farm good for 30 bbls. a day.

Dusters in Perry and Hocking

The fair producers in Perry County were minimized by the completion of three dry holes. In the NW of Section 21, Harrison Township, the Wehrle company completed a duster on the A. M. Rodgers lot in the Clinton sand at a depth of 3,685 feet. In the southwest quarter of the same township, Miller, Jewell and others have a duster in the same formation at a depth of 3,676 feet on the J. H. Crider farm.

In the SW of Section 26, Washington Township, Hocking County, Berlin & Co.'s test on the H. F. Riggs farm is a duster, no sand having been found at this location.

In Section 11, Mary Ann Township, Licking County, George M. Long has completed and shot in the Berea grit No. 4 on the W. Dwiggins farm. It is good for 12 bbls. a day. In the central part of Section 12, Sutton Township, Meigs County, S. A. Palmer & Co. drilled their test on the Mina Morrison farm through the Berea grit without getting a show of oil or gas. In the NE of Section 29, Salisbury Township, Frank Lefeiht and others have started to drill a test on the Henry Reuter farm.

In Section 9, Monday Creek Township, Perry County, the Coal Brook Oil & Gas Co. has started to drill a test on the John Cameron farm. In Washington Township, Hocking County, Berlin and others are drilling on the W. F. Riggs farm. In Monday Creek Township, Jesse Tucker and others are drilling on the William Lemon farm. In Falls Township, Berlin Brian & Co. have a rig up on the James Guthrie farm. In Lot 15, Cambridge Township, Guernsey County, the Hopewell Oil & Gas Co. has a rig up on the R. C. Simmons farm. In Section 13, Killbuck Township, Holmes County, the Kemrow company is due in the sand on the Charles Shuy farm. In Perry Township, Licking County, Pentz & Hulse have started to drill on the James Chaney farm. In Hanover Township, the Hope Construction & Refining Co. has rig timbers at a location on the James Griffin farm. In Rush Creek Township, Fairfield County, Frank C. Linton is due in the sand on the Edson B. McCullough farm. In the same township, E. O. Soan has a rig up on the J. C. Moyer farm.

West Virginia

The well of most importance completed in the West Virginia fields is the Gerwig & Kochte Oil & Gas Co.'s well on the A. Hardman farm, 7,000 feet east of the South Penn Oil Co.'s test on the N. T. McConaughey farm on the Kanawha River in Canter district, Calhoun County. The well got its production in the first Cow Run sand and is estimated good for more than 50 bbls. a day. They are now erecting tankage and will be able to get a gauge. If this well proves as good as estimated it may lead up to the development of a Cow Run sand pool. There is room for expansion in that locality.

In Clay district, Ritchie County, the Aetna Oil & Gas Co. completed a test on the J. A. Bumgardner farm. It is a gasser in the Keener sand. In Murphy district, the Hope Natural Gas Co.'s No. 4 on the J. L. Hill farm is showing some oil and gas in the Squaw sand.

In Jefferson district, Lincoln County, the Russell Gas Co.'s test on the Elizabeth Adkins farm is a gasser in the Berea grit. In the same district, the Mud River Gas Co. has a gasser in the same formation at a test on the Golden Stone farm. In Carroll district, C. C. Wolfe has a Berea grit gasser at a test on the Grant Cremeans farm.

Calhoun and Gilmer Counties

In Lee district, Calhoun County, Kingsbury & Dollman have a show of oil and gas in the Big Injun sand at a second test on the L. L. Lynch farm. In DeKalb district, Gilmer County, Blaine Engle & Co.'s test on the Maria Davis farm is a gasser in the Maxon sand.

On McFarlan Creek, Murphy district, Ritchie County, the Hope Construction & Refining Co. has drilled down an old well on the Sidney Jordan farm and is a gasser. In Carroll district, Lincoln County, L. R. Sweetland has a gasser in the Berea grit at No. 20 on the Greenley Puckett farm.

Deep Gasser in Harrison County

At Wolf Summit, Coal district, Harrison County, the Reserve Gas Co. has drilled a test on the Hugh Thompson farm to the Speechley sand. They gave it a shot and developed a little oil and gas.

In Center district, Gilmer County, the Chartiers Oil Co. completed No. 7 on the Daniel Huffman farm, good for 100 bbls. a day in the Big Injun sand. The Chartiers Oil Co. holds leases on several farms adjoining the Huffman farm. On the Stump and Baptist Missionary farm, this company has completed good producers.

In Murphy district, Ritchie County, the Maxon Oil Co. drilled in No. 3 on the Eli M. Parks farm. It is showing a little oil and gas in the Maxon and gas sands.

In Jefferson district, Pleasants County, Charles Ingraham and others have a gasser in the salt and Big Injun sands on the D. Poynter farm. In Barbourville district, Cabell County, the United Fuel Gas Co.'s test on the G. D. Kuhn farm is a gasser in the Big Injun sand.

On the waters of the left fork of Camp Creek, Stonewall district, Wayne County, 2 miles north of Eastlynn, Meadon & Huffman have completed in the Big lime a test on the Wayne Osborne farm. It is a gasser good for 4,000,000 feet and spraying oil at the rate of 35 bbls. a day. If this well shows staying qualities it will be an incentive for starting some new work in that locality. As a producing formation, the Big lime has not been regarded as important; the wells previously completed got their production in the Berea grit. In the event a new pool is found in West Virginia it is most likely to be located in Wayne or some adjacent county. The Chartiers Oil Co. has been the most active in search for new producing territory in Wayne County.

Tyler County

In McElroy district, Tyler County, the South Penn Oil Co. has completed No. 3 on the Lucius Hoge farm. It will make a very light pumper in the Gordon sand. In Grant district, Wetzel County, the Carnegie Natural Gas Co. has a gasser good for 1,000,000 feet in the Gordon sand at a test on the Wycoff farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co.'s second test on the Anderson farm is a 5-bbl. pumper in the Salt sand. In Church district, Wetzel County, the same company's test on the E. E. Roberts farm is a 10-bbl. pumper in the Gordon sand.

In Lee district, Calhoun County, Martin Crowley has completed in the Big Injun sand No. 3 on the A. L. Sturms farm. It is a gasser good for 500,000 feet. In Center district, Gilmer County, the Sheer Run Oil & Gas Co. has a gasser in the Big Injun sand at No. 4 on the C. D. Mollohon farm.

Patterson & McCracken's test on the W. T. Taylor farm, in Battelle district, Monongalia County, is a gasser in the Bayard sand. In Church district, Wetzel County, the Freeland Oil & Gas Trust Co. has a gasser in the Gordon sand. In Union district, Harrison County, the Reserve Gas Co.'s test on the J. C. Bartlett farm is a gasser in the Speechley sand.

New Work Starting

In McComas district, Cabell County, the Kentucky & West Virginia Gas Co. has started to drill on the E. S. Morrison farm. In the same district, this company is building a rig on the Thomas McCallister farm. In Union district, Lincoln County, Roy & McComas have shut down at a test on the Randolph Sias farm. In Geary district, Roane County, the United Fuel Gas Co. is drilling tests on the J. C. Stump, G. T. Linkenoggen, A. L. Smith and Lucy Allen heirs' farms. The same company has a rig up on the O. D. Stockly farm.

Drilling Tests

In New Milton district, Doddridge County, W. Claude Maxwell has the rig completed for a test on the Seventh Day Baptist parsonage lot. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. is hauling tools to a location on the I. W. Bonar farm. Dowdell & Johnson are drilling to the lower sands an old well on the Edward

(Continued on Page 119)

NUMEROUS WILDCAT OPERATIONS IN SEVERAL MICHIGAN COUNTIES

Outside of the Muskegon, Saginaw and Monroe County Fields, numerous wildcat ventures are being made, although a number are shut down on account of weather conditions.

In Gratiot County, west of Saginaw County and northeast of the town of Bannister, the Sun Oil Co.'s No. 1 on the S. S. Menter farm, in Alba Township, in the southeastern part of the county and southeast of the town of Ashley, is reported dry, with no showing at 10 feet in the Saginaw sand at 2,435 feet. The Horrie Oil Co. and the Wayco Oil Co. are both drilling tests in practically the same area.

Crawford County—Grayling Development Co. is shut down at a test west of Frederick in the northwestern part of Crawford County.

Roscommon County—Grayling Development Co. has a fishing job at a test southwest of the town of Roscommon and between Roscommon and Higgins Lake, in the north part of the county.

Newago County—Newago Prospecting Co. is shut down at a test on the Lake Ranch, northeast of Muskegon.

Sunilac County—Frank Obee is shut down at his test west of the town of Palms, in the eastern part of the State and in the northeast part of the county.

St. Clair County—Michigan Petroleum Co. is underreaming at a test to the southwest of the town of Blaine, north of Port Huron and in the northeastern part of the county. St. Clair Oil & Gas Co. is drilling near St. Clair, in the eastern part of the county, also moving in for a test to the north of St. Clair. Diamond Crystal Salt Co. is drilling on its property at St. Clair.

Van Buren County—Tuttle and others have a rig in for a test southwest of Decatur, in the southern part of the county and in the southwestern part of the State. The Wert Oil & Gas Co. is also drilling a well in the same area.

Midland County—The Pure Oil Co. is shut down awaiting supplies to drill deeper its test on Root-Rayner land, 9 miles east of Mount Pleasant and 17 miles northwest of Midland, the county seat. This well is in Section 18, Greendale Township, and struck top of Dundee at 3,500 feet and top of pay at 3,533 feet, where it made 30 bbls., but will be drilled to a greater depth into the Dundee.

Mason County—Ludington Oil & Gas Co. is drilling for the Dundee sand in a test southwest of Walhalla, in the western part of Michigan.

Livingston County—Andrus Hannah is drilling a test south of Argentine in the northern part of the county. North of Fowlerville, in the northwestern part of the same county, Norris & Smith are reported setting drive pipe in a wildcat.

Oakland County—Charles Lasky and others have made a location for a test east of Pontiac and between there and Mount Clemens.

Washtenaw County—Davis and others

(Continued on Page 124)

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Wildcat Producer in New King Pool

Well Makes 50 Bbls. North of Ambrose Pool, Ohio County. Daviess County Test in 48 Feet of Sand Proves Disappointment

By Whit
Staff Correspondent, Kentucky-Tennessee

HARTFORD, Ky., Apr. 16.—Operators are well set in the fields of western Kentucky for a real active drilling campaign. All that is required to bring it to that point is better weather conditions and better roads to move material. These conditions have hampered work during the past few months and the average oil man is "rarin' to go." The counties now being closely watched are Ohio, Daviess, McLean, Hancock, Breckenridge, Henderson, Webster, Union, Muhlenburg and others adjoining. Ohio and Davies Counties are the most active and have shown the best results of the drill. The completion of a wildcat well a couple of miles north of the north end of the Ambrose Pool, in Ohio County, in what is known as the King Pool, on the Whittaker heirs' farm, opens up a section of Ohio County, which the operators had not ventured into before. It is reported good for 50 bbls., and being a real wildcat has caused some emotion among operators and scouts. The oil was found in the Jett sand and additional work will be started at once on the lease, as well as on surrounding leases.

A surprise was sprung when Dug Bolling and others failed to find an oil producer on the Bert Haley farm, in the southern part of Daviess County, when drilled through 48 feet of sand, where a large flow of salt water was found by the drill. This developed into one of the most disappointing bits of news coming from the field for a long period, as nothing but a good producer was expected.

No. 9 well on the Bartlett heirs' farm, in the Ambrose Pool, like others on the same lease, shows for around 150 bbls. initially. No. 10, same farm, was completed some time ago, as No. 9 was delayed by a fishing job, and there are now 10 nice producers on the lease. Another attractive find was made on the Jeff Lee farm, a couple of miles northwest of Utica, in Daviess County, being reported with an initial of 100 bbls.

Week's Work

A summary of the week's work in the Kentucky fields shows 19 completions, 17 producers with an initial production of 810 bbls., 1 dry hole and 1 gas well. Compared with the previous week, there were 17 less completions, 5 less producers, 5 bbls. less new production, 12 less dry holes and the same number of gas wells. The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry	Gas
Ohio	9	9	430	0	0
Daviess	6	5	360	1	0
Wolfe	1	1	15	0	0
Warren	1	1	3	0	0
Elliott	1	1	2	0	0
Knox	1	0	0	0	1
This week	19	17	810	1	1
Last week	36	22	805	13	1
Difference	17	5	5	12	0

Eastern Kentucky

Only two completions were reported from the eastern part of Kentucky, the Petroleum Exploration Co.'s No. 3 on the North Jellico Coal & Land Co., on North Jellico, Knox County, which was a light gas well, and unknown parties' test on the Dan Oliver farm, on Newton Creek, in Elliott County, with a production of 2 bbls.

Breener, Adams and others' No. 2, on the Bush-Spencer land, in District 20, of the Torrent Field of Wolfe County, is showing for around 15 bbls.

Western Kentucky

Oil operators and leasers from all over the fields of the East are invading western Kentucky and much leasing is being done far in advance of production. With better weather an intensive wildcat drilling will be launched, much leasing being done across the Ohio River on the Indiana side to the north of Owensboro.

Ohio County Wells

In the Kelly Pool, Ohio County, Oliver Jenkins and others' No. 3 on the Joe Bellamy 25 acres, a string of 402 feet of casing was set; sand from 416-37 feet and drilled to 439 feet and given a 60-quart shot, it had an initial production of 29 bbls.

White Plains Oil & Gas Co. set a string of 380 feet in its No. 4 on the Ada Kelly 64 acres, in the Kelly Pool, getting sand from 413-31 feet and going to a total depth of 448 feet, with an initial production of 40 bbls. after an 80-quart shot.

Ohio Oil Co.'s No. 1 on the Whittaker heirs' 84 acres, in the King Pool, north of the Ambrose Pool and west of the Midkiff Pool, a purely wildcat venture, was completed with an initial production of 50 bbls. A string of 541 feet of casing was set in this hole; sand was found from 557-70 feet and shot at that depth with 60 quarts. Other wells will be started at once on this and adjoining leases.

Creek Drilling Co. set a string of 492 feet of casing in its test on the Emma Ford farm, in the King Pool; found sand at from 520-31 feet and was shot with 30 quarts, getting an initial production of 36 bbls. Same company's No. 9 on the Bartlett heirs' 81 acres, in the Ambrose Pool, is reported with an initial of 150 bbls.

Whitesville Oil Co.'s No. 4 on the Haskins farm, near Deanfield, northeast of the Midkiff Pool, is credited with an initial production of around 25 bbls.

Trico Oil & Gas Co.'s No. 4 on the Gilbert Jolly farm, west of Buford, and near the west line of Ohio County, is reported good for 35 bbls., and No. 5, same farm, is showing for about the same amount.

Hunt & Kerr's test on the Bean farm, southwest of Basham and east of the Sunnydale Field, is reported showing for 15 bbls., at a shallow depth of 345 feet, there being 15 feet of sand. This shows that the producing sand rose quite rapidly to the east from the Sunnydale Field. This company will drill a series of tests in that part of the county.

Daviess County

Another good looking producer is added to Daviess County, by the bringing in by Leeper, Noe, Hardwick and others' No. 1 on the Pete Mahloskey farm, 1½ miles northwest of Utice, in Browns Valley and 450 feet south of No. 1 on the Jim Brown farm. In this well sand was topped at 1,200 feet and started running out of the top of the casing at 14 feet in the sand, with approximately 34 feet more of sand to be drilled through. It shows as good as the Brown well, although estimated at about 150 bbls., and as good as any of the wells so far drilled in the county. This looks like a nice pool and while it may not be as large as the Ambrose Pool, in Ohio County, it means much for the operator who has leases to operate. Miller & Damron, adjoining the good Brown farm well, have just drilled in No. 1 on the Jeff Leet farm, with sand at the same depth and the well is said to show for around 100 bbls. or better. The wells that are close around get the sand at the same depth, which naturally means a pool, all drawing from the same vein.

Miller & Damron's second well on the Led Ford farm, in the Hayden Pool, same county, is estimated at 35 bbls. initially. Dug Bolling and others struck a heavy salt water flow at a depth of 1,118 feet on the Bert Haley farm, southwest of Utica and a short distance north of the McLean County line, and it will be abandoned, after passing through 38 feet of real sand.

Coomes and McMahon's test on the C. M. Jones 112 acres, about 3½ miles west of Whitesville and a little southwest of the hamlet of Boston, is estimated at 50 bbls. initially, and opens up another pool.

Leeper Oil Co.'s No. 9 in the southeast corner of the John Roby 90 acres, in the Roby Pool, to the southwest of Pellville, is reported at around 25 bbls.

Warren County

In the Bowling Green Field, in Warren County, and southwest of Bowling Green, the Baker-Jones Oil Co.'s No. 9 well, 1,600 feet from the north line and 1,100 feet from the east line of the Gillespie 102 acres, pumped 3 bbls. at a depth of 1,058 feet.

Field Pickups

C. H. Tremor and others are working at a test on the Jasper Lloyd farm, east of Maxwell, in the western part of Ohio County. Leeper Oil Co. is starting No. 1 on the Fred Weir farm, in the Gilbert Jolly Pool west of Buford, in the north part of the same county.

East of the Sunnydale Field, in Ohio County, Hunt & Kerr are drilling a test on the Ollie Duff farm, near Dundee.

In Daviess County, the Ohio Oil Co. is drilling deeper its test on the Louis Igleheart farm, south of Maxwell and 1½ miles north of the McLean County line. Fred Kennedy is starting a well on the Lonnie Cooper farm, and Bert Thompson is drilling No. 1 on the Harvey Asher farm. Burns and Son are starting No. 1 on the Howard farm, which adjoins the C. M. Jones farm, 3½ miles west of Whitesville. R. D. Hance is starting a well on the J. W. Purcell farm, a mile east of Whitesville. Imperial Oil Co. is starting a test on the Christ Evans 50 acres, adjoining the C. M. Jones farm west of Whitesville. Dug Bolling and others are starting No. 1 on the Hazel Miller & Auf farm, and the Ohio Oil Co. is drilling on the Lawrence Roby 87 acres, near St. Lawrence, southwest of Pellville. Albert A. Borton is starting a test on the George Nischan farm, 2 miles east of Browns Valley. The Ohio Oil Co. is starting No. 1 on the Ora Burton farm, an offset to the well on the C. M. Jones farm, west of Whitesville, also No. 1 on the G. R. Rudy farm, at Union Hill, near Utica, and No. 1 on the Mrs. Price Baird farm, same area. Miller and Damron are drilling No. 2 Alvey Tyler farm, in the Hayden Pool; No. 2 on the Leet farm and Nos. 1 and 2 on the Dutch Tompkins farm, in the Brown and Hayden Pools.

Young & Murray's test on the Lloyd Leachman farm, north of Calhoun, in McLean County, was dry in the Jett sand after the concreting process was finished, and is now being drilled down for the Barlow sand.

The test drilling on the Claud Alvey farm, in the southwestern part of Daviess County and near the St. Raphael's Church, has its underreaming job completed at a depth around 1,100 feet and is now going ahead and due to reach the sand.

A syndicate of Lancaster, Ohio, drilling on the Dick Murphy farm, near Curdysville, and West Louisville in McLean County, is down close around 600 feet.

Buckner-Larue Co. sold the Christ Evans 50-acre lease, adjoining the C. M. Jones lease, 3½ miles west of Whitesville, in Daviess County, to the Imperial Oil Co. at $100 per acre, after purchasing

(Continued on Page 119)

WEATHER RETARDS DEVELOPMENT IN FIELDS OF THE CENTRAL WEST

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 14.—Owing to weather conditions no new completions were reported from any part of the Central West Field but Central Ohio. The Lima Field, Indiana and Illinois failed to have any new wells brought in and had no new ones starting, for the first time in their history.

Nothing new has developed in the Deerfield Field of Monroe County, Michigan, a short distance north of the old Lima Field. The well on the Dusseau-LaPlant farm in Section 19, Dundee Township, of that county, that showed 72 bbls. in 20 hours under pump from the Trenton at around 2,245 feet, after pumping off the salt water, had another breakdown and the Deerfield Oil & Gas Co., owners, are arranging to install new pumping rods. The well has all the earmarks of a good producer when it can be pumped steadily 24 hours a day and it is bound to bring about the drilling of more wells in that area.

While at least four new wells are under way in the new field in Liberty Township, Seneca County, near Tiffin, Ohio, where a 70-bbl. producer was recently brought in, none is close to the sand which is deeper than in other portions of the Lima Field, and the rain and ice freezing on the drilling cables cause a great deal of trouble, otherwise at least two would have reached the sand ere this.

Indiana Field

New fields are being sought in parts of Indiana that have had but few tests. Southern Spencer County, in the extreme southern portion of the State, is being more thoroughly leased than at any time in its history. Leasing was first started in December and thousands of acres have been taken up. The recorder at Rockport, the county seat, reports having received bunches of leases for record, in one case over 200 oil and gas leases at one time from one operator. There are a number of good companies and operators in this territory which will mean there will be a number of tests drilled during the summer. The Wiser Oil Co. has entered into an agreement with E. M. Treat, whereby it will drill three wells in Ohio and Luce Townships, Spencer County. This company will probably be the first to get a rig in that part of Spencer County. The Liquid Gold Oil & Gas Co., a new company started by local men of Grandview and Rockport and vicinity, and also a company from Chrisney and vicinity, show the interest in that part of the county. Warrick County, lying to the west of Spencer, is also being very thoroughly leased, as well as Perry County, to the east, which also has been very well covered. If even a fraction of the proposed tests rumored around the country are drilled there may be some good ones found among them, for taking into consideration the location of this part of Indiana, between the old fields on the west side of Indiana and the new fields near Owensboro, Ky., with practically the same formations throughout, it would appear reasonable there should be some pools opened on the Indiana side of the Ohio River. The Wiser Oil Co. has made

(Continued on Page 119)

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work. The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

EFFECT OF PULLING VACUUM

Wells on my property were on vacuum for about five years. There are 16 wells on the property. About three months ago I took the wells off vacuum because I was losing money by operating the vacuum plant. Then I kept on pumping the wells to see if I could get any production without the vacuum. At first the production was lower than it was when the wells were on the vacuum, but in about three weeks the production began increasing, and at the present time it is just about the same or a little more than it was when the wells were on the vacuum. I had been carrying about 18 inches on the vacuum. The gas production is less than half of what it was before I took the vacuum off. What I can't understand is why the production should be at least as high now as it was when pulling a vacuum. How would you explain this? Also do you think the production will keep up as it now is for some time?—I. O. D.

Numerous other properties on which the same thing has been experienced in the last year might be cited. A possible explanation for this maintenance and occasional increase in oil production would be that the effect of pulling vacuum did not extend back very far into the sand from the wells. This would be particularly true in a compact, tight sand. It is now generally recognized that while applying vacuum in some cases has resulted in an increase in oil production, in many others there was no apparent increase in oil although there was an increase in the gas produced. If the sand is amenable to repressuring it is a mistake to pull a vacuum prior to repressuring. However, in your case, the fact that the wells continue to produce as much oil after discontinuing vacuum would indicate that no great harm had resulted from vacuum.

On the other hand it would seem that rather high pressure would be required to repressure the sand for the same reason that vacuum did not materially affect the oil at only a comparatively short distance back in the sand. Aside from the immediate economic factor, it is a mistake to produce any more gas than necessary from the sand as this tends to increase the viscosity of the oil remaining in the sand thus making it more difficult for the oil to travel to the wells, and also, as the gas furnishes the energy required to move the oil, it should be utilized as much as possible for that purpose. Considering the fact that those sands most favorable for vacuum are also most favorable for repressuring and that greater recovery will result from repressuring, it is apparent that the adoption of the latter method for increasing production is good business.

On account of the apparent lightness of the sand it is highly probable that the rate of decline will be comparatively slow and that there will be no noticeable decrease in the daily production.

DISTANCE BETWEEN PIPE-LINE STATIONS

How far apart are pumping stations usually placed on long oil pipe lines? Has it been found by actual experiment that they must be not more than a certain distance apart?—G. H. H.

The distance between stations on a long pipe line is usually between 30 and 50 miles. For a certain quantity of oil to be pumped a given distance, the smaller the diameter of the pipe, the less the distance between stations, and the larger the pipe, the greater the distance between stations and consequently the fewer the stations.

For example, suppose we wish to build a pipe line to carry 18,000 bbls. of oil a day (24 hours) a distance of 550 miles. Suppose also that the oil is 30 A P I. gravity with a viscosity of 90 Saybolt seconds at 45 degrees Fahrenheit; that the coldest oil we expect to pump and get this 18,000 bbl. flow is 45 degrees Fahrenheit; and that the country traversed by the line is level.

From charts built up from theory and practice, the pressure required to pump this 750 bbls. per hour (18,000 per day) through each mile of pipe would be:

	Pounds per square inch per mile
Through 4-inch pipe	480
6-inch pipe	70
8-inch pipe	16.5
10-inch pipe	5.7
12-inch pipe	2.5

Commercial line pipe is made in various sizes and strength for some particular size, but not at all the same test pressures. The kind of pipe generally used for this work has the following test pressures:

Size	Test pressure	Customary safe working pressure
4	1,600	900
6	1,500	870
8	1,200	700
10	1,000	550
12	900	450

All these pressures are in pounds per square inch.

It is at once evident that with 4-inch pipe we could pump only about 2 miles, so that 275 stations, each capable of pumping 18,000 bbls. a day, would be required. This would never do economically, as while the cost of the 550 miles of 4-inch pipe would be much less than if a larger pipe were used, the cost of building and operating 275 stations would be unreasonably high. It is also evident that:

Pipe size	Distance between stations (miles)	Number of stations
6	12	46
8	42	13
10	97	6
12	180	3

The 8-inch line with the 13 stations 42 miles apart would probably be found the most economical workout for a reasonable length of time. If it seemed likely that after pumping 18,000 miles a day for a few years, a capacity of more than this would be wanted, a system with, for example, 10 stations could be worked out, the pipe being 8-inch for some miles out of each station where the pressure is highest and then 10-inch or 12-inch for the rest of the way into the next station so proportioned that the pumping capacity would be 18,000 bbls.

Subsequently, if 25,000 bbls. a day is needed, the 8-inch pipe could be "looped," that is, have another parallel line, perhaps 8 inch, too, laid with it so that each station, which would now have to have its pumping capacity raised to 25,000 bbls., would pump through two parallel 8-inch lines, then into the 10 inch or 12-inch into the next station, the whole system being arranged so that the safe working pressure, where the larger pipe begins, is not exceeded.

In an actual problem of this nature, the land traversed by the pipe line is often hilly, which fact must be considered as well as any difference of elevation above sea level from one station to another.

It also may be desirable to have the stations not all exactly the same distance apart on account of elevations or because of the desirability of being not too far from a railroad.

Of interest in this connection is an article on "Fluid Flow and Friction in Pipe Lines" in The Oil and Gas Journal for October 7, 1926, in which William G. Heltzel tells of the development of the charts referred to here and gives instructions for their use.

THE ROTARY IN WILDCAT TERRITORY

Will you kindly give me the following information? What are the dangers of drilling into the sand in wildcat territory with a rotary drill? Why do the larger successful operators use a rotary part way and then switch to a standard tool to enter the sand? Any information you can give me regarding the above will be greatly appreciated.—W. B. O.

Prior to the advent and general use of the core barrel in rotary drilling when operating in wildcat territory, there was the possibility of drilling through productive oil and gas sands without their presence being detected. One instance is recalled in a field that practically had been drilled up for several years with rotary tools, where the drilling mud in a well was inadvertently thinned and the well came in as a fair-sized producer from an upper sand that was not known to be productive. The intelligent and widespread use of the double core barrel has about overcome this difficulty and the rotary now is being used to a large extent in wildcat territory.

Owing to the rapid strides made in the development of rotary equipment, wells can be drilled more rapidly with it than with cable tools, even in territory where it was formerly believed that cable tool drilling would never be supplanted. This accounts for the fact that many of the larger operators use a rotary down to a certain depth, usually to a short distance above the producing sand, or if in wildcat territory, to some point above where a possible producing sand may occur. This applies to areas where the formations are hard and consolidated, hence underlying formations may be prospected with cable tools by the dry method. No advantage, of course, would be gained by using cable tools and circulating mud fluid, a procedure which was practiced in California at one time.

It is the law in certain states that wells must be completed with cable tools because of possible mudding off and entry of water into producing sands.

There are certain advantages and disadvantages when drilling in with cable tools.

The advantages are: Oil and gas sands are located readily; variations in productivity of a producing formation with respect to depth may be noted; there is less danger of mudding off a producing sand; also the presence of water in any part of the sand may be detected.

On the other hand, it is very difficult or impossible to tube the well before bringing it in, a procedure which suggests itself as good policy. It might be contended that a well may be capable of producing more oil than can be produced through the tubing. However, if this is the case, the oil may be taken from the casing as well as the tubing. A well completed with rotary tools may be brought in under better control.

WELL TEMPERATURES

I understand that articles have appeared in The Oil and Gas Journal pertaining to temperatures in wells during drilling operations and their relation to the lack or presence of oil, and any information in this connection which you may be able to furnish will be more than appreciated. We have looked through our copies of The Oil and Gas Journal on hand, but fail to locate anything.—M. E.

You will find two articles on this subject in The Oil and Gas Journal for August 26, 1926. One is on "Taking Temperatures of Oil Wells" and the other on "Interpreting Earth Temperatures." You may find of interest also a question and the accompanying answer under "Deep-Well Temperatures" on the "Field Problems" page in the issue of February 16, 1928.

OPERATION OF STAGE LIFT

Have you any information on a stage lift that has been developed in Oklahoma during the past year? Can you tell me how it operates? I understand that wells can be made to flow at very low pressures.—S. F. H.

The pump you have in mind is probably one that was developed by an engineer with one of the oil companies operating in Oklahoma. Tests made in the field on very small producers demonstrated the workability of the lift. The lift was operated at about 70 pounds working pressure, with the depth of the wells approximately 1,600 feet.

As implied by the name, the oil is lifted in stages, the number of stages depending upon the available well pressure and the depth of the well. While the entire lifting mechanism is operated inside a string of tubing, the series of lifts are independent of each other. That is, as soon as oil has been lifted in the lowest stage, which is at the bottom of the well, that particular oil has been removed from the well. The lifting operation is repeated in each successive higher stage until the oil flows from the well. Thus only the back pressure imposed by the lowest stage is held on the sand.

Special types of collar separate each stage of lift. Small sizes of pipe within the tubing serve as conductors of oil and gas. The heights of lift in the different stages are the same. The apparatus has been worked out carefully both experimentally and practically, as evidenced by the successful operation of the first one installed in a well. Later installations operated with equal success. While the stage lift has been operated in small pumping wells only, there seems to be no reason why it should not operate successfully in larger wells.

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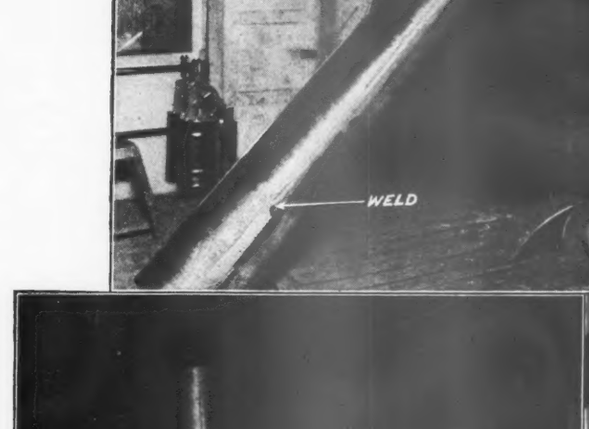

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SMITHSTEEL GAS LINE PIPE

Natural Gas Developments

FOUR GAS PROJECTS PLANNED IN LOUISIANA

SHREVEPORT, La., Apr. 14. — Gas pipe line developments hinted at from time to time during the past few months materialized with publication in Memphis papers of the conclusion of arrangements for delivering gas from the northeast Louisiana fields to that city, and in Shreveport of plans of Magnolia Gas Co. for a line from the Richland Parish fields to connect with its Waskom-Beaumont line at Sarepta via Sterlington in the Monroe gas field.

A $13,000,000 bond issue by Arkansas Natural Gas Co. was approved by the Arkansas Commission. This bond issue according to authority from Southern Cities Distributing Co. into which the Arkansas Natural has been merged, is to take care of certain extensions contemplated by the various merged companies prior to the consolidation. One of these is 40 miles of main line north from Texarkana to DeQueen and Mena; another is the Clarksville-Little Rock line projected by the Public Utilities Co. of Arkansas (a Doherty property) over a year ago; the third is the Little Rock-Memphis extension for which Arkansas Natural has been preparing while negotiating with the Cities Service interests and the possible (if not probable) fourth, is extension of Natural Gas & Fuel Co.'s Richland-Camden line from Camden or El Dorado to Trees compressor station, a few miles south of Prescott on the Arkansas Natural's line from Caddo Parish to Little Rock.

Most, if not all, of the preparatory work has been done on all four projects but the Richland-Sarepta-Waskom extension of the Magnolia is the first to get under way. It is understood construction will begin immediately and that the line will be 16-inch welded, of approximately 160 miles. Ouachita Natural Gas Co., the S. S. Hunter estate which pioneered the Monroe Field, will be the producing agency. It has large holdings of proven, semiproven and wildcat in both Monroe and Richland Fields and with a reserve of 400,000,000 feet, developed and potential, has been seeking an outlet for some time, having recently acquired a competitive franchise in El Dorado, Ark., and built a pipe line to that city.

According to information from Memphis, the last obstacle to natural gas for the city was removed when the Memphis Power & Light Co. and the Doherty interests reached an agreement. This entailed organization of the Memphis Natural Gas Co. which is supposed to build an $8,000,000 pipe line to the northeast Louisiana fields, but with the existing hookup as outlined, it is hardly probable that a brand new pipe line will be built from Louisiana to Memphis simply for the sake of delivering gas to that city. Construction of the Little Rock-Memphis extension, now that the bond issue to finance it has been approved and all the preliminary work accomplished, will probably begin immediately, or as soon as the Southern Cities Distributing Co. can get itself organized and functioning. Rates to be charged Memphis consumers range from $1.20 per 1,000 feet for 3,000 feet or less per month, to around 8 cents per 1,000 feet for large industrial consumers with the usual minimum service charge to domestic consumers of 50 cents.

Beaumont will be getting Monroe and Richland gas through Magnolia Gas Co.'s line, which is nothing more than an extension of its feeder from north Webster Parish and Cartersville (Bossier Parish) Fields to the Waskom-Beaumont line completed three or four years ago. When the main line was built Waskom loomed as a gas field of major proportions and long life but it failed to live up to promice and an extension to north Webster Parish fields—Sarepta-Shongaloo—followed shortly afterward; and since it was built the Cartersville gas field of north Bossier Parish, near which it passes, has been brought in. With the tapping of the Richland Field, Magnolia is thus afforded four sources of gas in large quantities and a fifth (Waskom) of more doubtful reliability.

Construction of the Magnolia line apparently blasts rumors of a Richland-Waskom-Houston connection by Moody & Seagraves. They were reported being interested in the advantage of an extension of their Waskom-Houston line across North Louisiana to afford an outlet of their Richland production, but at the time these rumors gained circulation it was admitted that while they were entertaining such thoughts, materialization is a long way in the future. It would be cheaper for Moody-Seagraves to effect arrangements with Belchic & Laskey for getting into Houston via Belchic & Laskey's line through central Louisiana to Lake Charles. This project is nearing construction point and the suggestion is not beyond the bounds of possibility.

WICHITA-TO-OTTAWA UNIT NEXT IN LINE

Cities Service Gas Co. announces plans for construction of 130 miles of 20-inch gas pipe line from Wichita to Ottawa, where it will tie into the Empire Gas line into Kansas City. This construction will finish up the Pampa, Tex., Wichita-Kansas City gas line and push Panhandle gas directly into Kansas City.

First unit, completed late in 1927, was the 250 miles from Pampa to Wichita, and the next unit will be to Ottawa. In the meanwhile the Empire Oil & Refining Co. is continuing its search for gas on the Burkburnett 6666 ranch in Carson and Gray Counties. The new unit will permit the furnishing of Panhandle gas to scores of towns in Kansas. Work is to start at once, Empire officials stated.

GASSER STILL UNCONTROLLED

CORPUS CHRISTI, Tex., Apr. 14.—R. D. Parker, chief supervisor of the oil and gas division of the State Railroad Commission, has returned to Austin after stating that his agency and the owners of Rachal No. 7, wild gasser, in the White Point Field, were doing all they could to conserve the gas. Expenditure of $30,000 by the owners of the Rachal well in conservation measures was sufficient evidence, Mr. Parker said, of their good faith. The well has been wild since January 16 and has been ablaze several times. It is feared that other wells in the same sand will be weakened unless Rachal No. 7 is capped. Water is being poured in from the top and from the bottom through another well 300 feet north of the wild gasser.

SURVEYING KNORPP LINE

KANSAS CITY, Mo., Apr. 14. — Surveying parties for the John L. Knorpp gas interests have begun work on the preliminary routes for the 20-inch main from the Texas gas field to Kansas City. One group was at work at the West Kansas Avenue bridge in Kansas City, Kans., heading westward toward Topeka. The survey will follow the Kaw Valley road. Another party started west out of Topeka and a third left Alva, Okla., heading toward the Texas line. Surveyors are organizing at Alva to survey east from that point to Wichita. The pipe line will be laid by Smith Brothers, Inc., of Dallas.

Leaders for the Knorpp interests assert that the pipe line construction will go steadily forward regardless of whether the franchise wins at the referendum election in Kansas City, Kans.

OUSTER PROCEEDING AGAINST INDUSTRIAL

JEFFERSON CITY, Mo., Apr. 14.—North T. Gentry, attorney general, has filed ouster proceeding against the Industrial Gas Co. at the instance of the Kansas City Gas Co. The suit attacks the validity of the franchise ordinance and asserts any additional investment in the gas distribution field in Kansas City to augment the investment already made by the Kansas City Gas Co. would result in a reduction of service and an increase of cost to consumers.

It was alleged the original ordinance granting a franchise to the Knorpp-Coomber group allowed 180 days for acceptance and that a second ordinance was voted by the council three days before the expiration of the 180-day limit provided in the first ordinance.

The second ordinance, it is said, merely extended the time limit for acceptance of the franchise 45 days and did not renew the franchise provisions of the original ordinance, which had expired under the terms of the city charter.

It was stated the Kansas City Gas Co. has $10,000,000 invested in Kansas City and an additional $30,000,000 in pipe lines. It was asserted there was a market for 25,000,000,000 feet of gas a year to domestic and industrial users in Kansas City. It was also alleged the Kansas City Gas Co. is adequately serving the Kansas City field, and that it will require $30,000,000 for the Industrial Gas Co. to build a pipe line to Kansas City.

The petition stated in part:

"It goes without saying that if the present investment, appliances and facilities of the relator (Kansas City Gas Co.) are sufficient to meet requirements of consumers of gas in Kansas City and adjacent territory, an additional investment of some $30,000,000 for appliances and facilities for serving the same consumers would materially increase the cost of the service so rendered without materially increasing the efficiency of service and would entitle those performing the service to advance the price of gas and service so supplied and rendered to meet the added cost to the material detriment of gas users."

The petition asked the Industrial Gas Co. be ousted from all franchise privileges and powers granted under ordinances in Kansas City.

EXPLOSION SETTLEMENT

PITTSBURGH, Pa., Apr. 14. — About $900,000 has been paid out by the Equitable Gas Co., subsidiary of the Philadelphia Co., in amicable settlements of claims resulting from the gas blast at the Manchester plant of the company November 1, 1927. The amount covers 2,397 settlements disposed of in four months. There are 4,700 claims filed. More than 800 dwellings were damaged, and reconstruction of these was begun immediately. The settlement without law suits is the result of a plan worked out by A. W. Robertson, president of the Philadelphia Co.

LONG BEACH SETTLEMENT

LOS ANGELES, Calif., Apr. 17. — Long Beach and the Petroleum Securities Corp. have settled their difficulties concerning a three-year contract for gas, out of court. Under the agreement made at a special meeting of city officials and officials from the corporation, Long Beach must pay $30,000 for some $400,000 worth of natural gas furnished to the city under the contract which they sought to break.

GAS PROPERTY MORTGAGE FILED

SHREVEPORT, La., Apr. 14.—In the form of a book of 164 pages, a mortgage on properties of the Moody-Seagraves interests in Louisiana and Texas for $25,000,000 was filed in the Caddo District Court. It secures an issue of bonds of like amount expiring in 1928, issued in financing the recent consolidation of gas producing, transporting and marketing properties in which Moody-Seagraves interests have part or controlling interests. Properties covered by the mortgage cover specifically those listed as Dixie Gas & Fuel Co. holdings and include 31 miles of pipe line from Mooringsport, La., to Marshall, Tex., the franchise granted by the then town of Cedar Grove, which, since July 1, has been a part of the city of Shreveport and the distributing system; the Marshall, Tex., franchise and 66 miles of distributing system; pipe lines from Waskom to Marshall, Kilgore, Longview, Hallsville, Jonesville, Scottsville, Jackson, Palestine and Rusk, Tex., and distributing systems in Jacksonville, Henderson, Rusk, Nacogdoches, Timpson, Carthage, Livingston, Garrison, Beaumont and various other communities along Dixie-Gulf pipe line from Waskom to Houston and Port Arthur and on branch lines. The instrument was the largest, in bulk and in size of the mortgage it represents, that has been filed here in several years. Chatham Phoenix National Bank and Trust Co., and James F. McNamara, of New York, trustee, are the mortgagees.

NATURAL GAS FRANCHISE GRANTED AT PUEBLO

PUEBLO, Colo., Apr. 14.—At a special election of tax-paying electors, the voters of Pueblo granted the Pueblo Gas & Fuel Co. a 25-year franchise for the distribution and sale of natural gas. Civic organizations, city officials and labor organizations were a unit in endorsing the project, which carried by a majority of better than 4 to 1. Pueblo will secure natural gas from the Colorado Interstate Gas Co., which is now completing a pipe line project from the Texas Panhandle Field to Denver, via Pueblo.

According to A. M. Talbot, manager of the Pueblo Gas & Fuel Co., orders for pipe and materials for local construction work have already been placed and the company expects to be ready for natural gas when it arrives. E. G. Hill, vice president of Ford, Bacon & Davis, engineers constructing the pipe-line project, is scheduling gas service from the pipe line about July 1.

NEW TEXAS DISTRIBUTOR

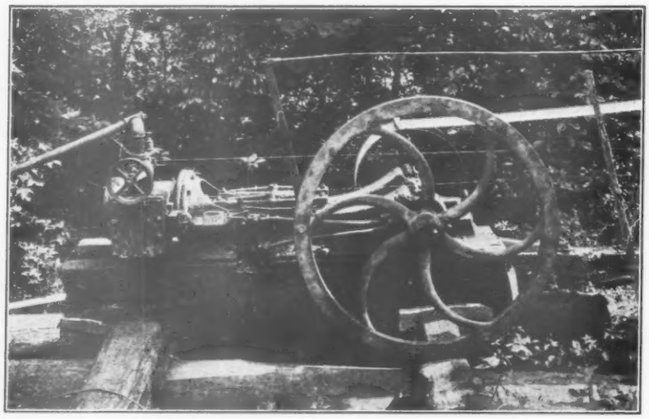
NEW YORK, Apr. 14.—The Stamford & Western Gas Co. has been incorporated in Delaware to own and operate natural gas transmission and distributing lines in Texas. The system, it is reported, will embrace approximately 235 miles of pipe lines, serving 20 communities in Hardeman, Foard, Knox, Baylor, Haskell, Jones and Fisher Counties, the company obtaining natural gas from the Northern Texas Utilities Co.

C. O. Moore has been elected president of the new company.

GAS SUPPLY FOR UVALDE

SAN ANGELO, Tex., Apr. 14.—J. G. Pundt, owner of the Pundt gas well, 12 miles south of Uvalde, has been granted a franchise for the construction and operation of a gas distributing plant in Uvalde for 30 years. The rates will be 75 cents per thousand feet with a minimum charge of $1. Gas is to be furnished within six months from the date of the contract to all parts of the city.

. . Will Your Drilling

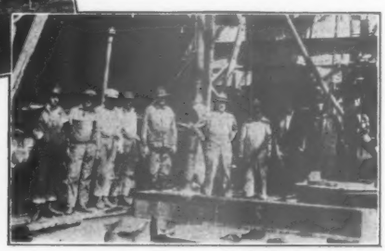


AJAX ENGINES

Ajax and Ideal-Ajax Engines are designed not only to deliver maximum power, but to withstand abuse.

Because of their ruggedly honest construction, many Ajax Engines built *more than a quarter century ago* continue to give as much power as when they were new.

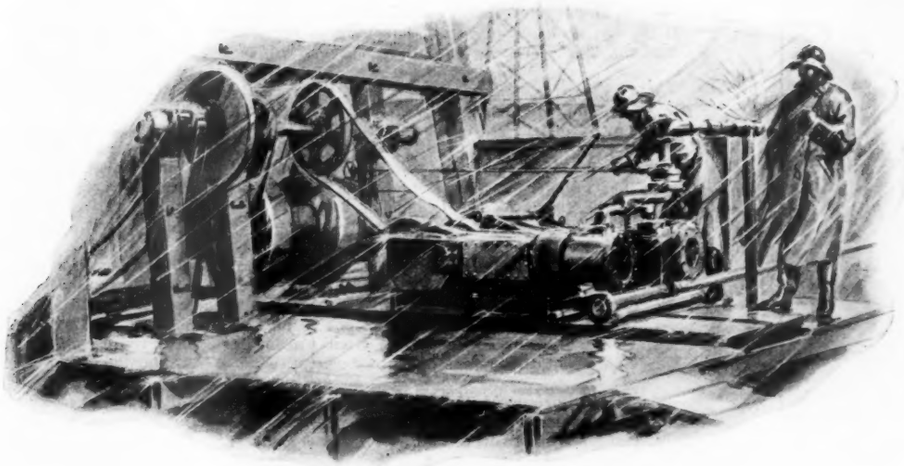
Two photos of Humble Oil & Refining Co.'s No. 31, Gallard Peninsula, Goose Creek, Texas. The 10x10 Ideal-Ajax Twin Engine in operation on this well has given constant service for more than seven years.



Drilling crew of Humble Oil's No. 31, left to right: A. M. McClerdon, R. L. Denman, J. N. Hulen, M. D. Canon, T. D. Horner, M. T. Cribbs (National Supply Representative), J. S. McKinstry (driller), C. A. McCollum (National Supply representative), and W. T. Hulme.

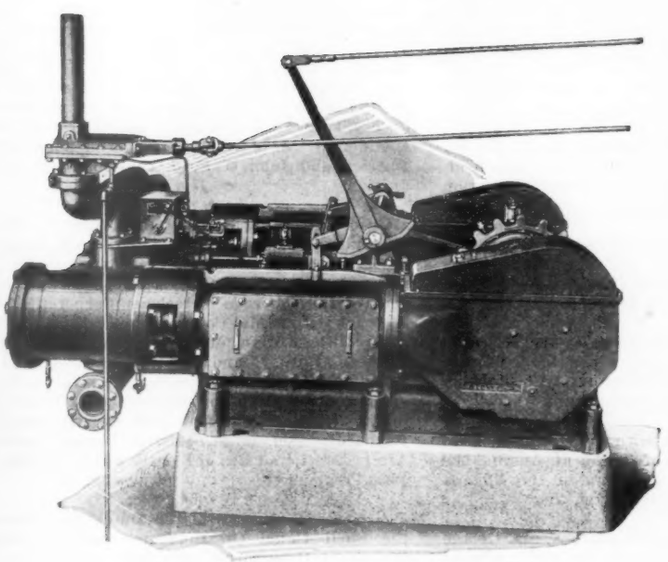
IDEAL-AJAX STEAM DRILLING

Engines Stand Abuse?



Drawn from an Ideal-Ajax installation at Cushing, Okla.

DRILLING engines are subjected to rough treatment. They are trucked about the country over the worst roads. They are left exposed to the elements in all kinds of weather.



Yet it is under exactly this condition that Ajax Engines seem to give their best results. They triumph over the worst punishment that man and nature can contrive, and year in and year out continue to deliver *power plus.*

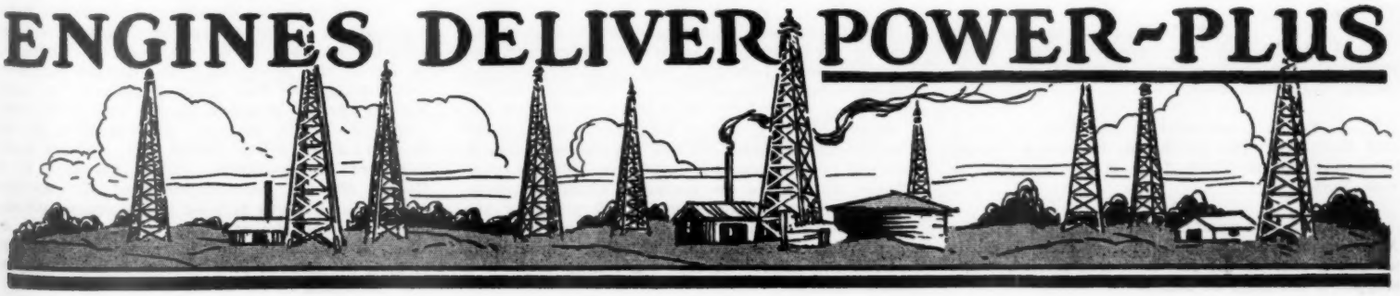
Made by

AJAX IRON WORKS
Corry, Pa.

DISTRIBUTED BY
THE NATIONAL SUPPLY COMPANIES

In every oil field

ENGINES DELIVER POWER-PLUS



MEN KNOWN IN OILDOM

R. D. Parker

R. D. Parker, chief supervisor of the oil and gas division, Texas Railroad Commission, is well known to Mid-Continent and especially Texas operators, as a proponent of conservation in the Texas fields. Those who are acquainted with him hold him high in their esteem and his years of service with the Railroad Commission has earned him the reputation of always being willing to co-operate with operators. At the present time he is serving as chairman of the Winkler County proration committee.

Mr. Parker is a veteran in the service of the Railroad Commission. His affiliation with the commission dates back to 1909 when he was appointed chief engineer and he has served in various capacities with that body continuously for 19 years.

During the early part of 1921, Mr. Parker was relieved of his duties as chief engineer of the commission and appointed head of the gas and utilities division of the commission. Last June he was made chief supervisor of the oil and gas division to succeed Judge H. E. Bell, resigned. The appointment of Mr. Parker to the post marked the appointment of the first technical man as chief of the oil and gas division.

Mr. Parker is a native Texan having been born in Calvert, in 1878. His early education was gained at Calvert and he is a graduate engineer.

PERSONAL PARAGRAPHS

P. N. Wiggins, Tulsa, with the Peerless Oil & Gas Company, made a recent trip to West Texas.

* * *

John E. Neelly, oil producer of Tulsa, is spending a 10-day vacation at his ranch near San Antonio, Tex.

* * *

Ernie Teagle, of the Chicago office of the Sun Oil Company, has left for a month's vacation in California.

* * *

Dr. E. R. Lederer, vice president of the Texas Pacific Coal & Oil Company, of Fort Worth, Tex., visited Tulsa last week.

* * *

R. A. Griffith, president of the Sinclair Oil & Gas Company, and H. B. Smith, vice president, have returned to Tulsa from a business trip to New York.

* * *

Charles A. Perryman, sales manager of the American Cable Company, Inc., of New York, is making a tour of the Mid-Continent territory, and stopped a few days at Tulsa.

R. A. Broomfield, president of the Barnsdall Oil Company of California, has just returned from a business trip to New York.

* * *

W. J. Cheley, president of the Zero Hour Torpedo Company of Tulsa, has returned from a month's trip to the north and east.

* * *

T. J. Donoghue, executive vice president of The Texas Company at Houston, Tex., has been elected president of the Houston Club.

* * *

E. A. Dreeben, of Tulsa, accompanied by Bernard H. Lasky, geologist of Tulsa, has been in the San Antonio, Tex., territory recently.

* * *

R. S. Howard, of San Antonio, Tex., left recently for Honolulu where he will visit a daughter, wife of an army officer stationed there.

* * *

C. A. Wheatley, of San Antonio, Tex., an oil man, has been elected president of the Texas division of the Isaac Walton League of America.

* * *

J. Edgar Pew, vice president of the Sun Oil Company, is back at his home in Dallas, Tex., after a tour of the South American oil fields.

* * *

Luther C. Turman, of the firm of Turman & Maxwell, has returned to Texas from California where he spent two weeks on a business mission.

* * *

Allen A. Borton, of Hillsdale, Mich., is looking over the Owensboro, Ky., fields and will start operations for oil in Browns Valley of Daviess County.

* * *

Fred L. Hartman, Walter Sargeant, George N. Timberlake and H. C. Higgins, of Lawrenceville, Ill., are taking a look over the busy part of Kentucky, in Ohio, Daviess, McLean and other counties, making their headquarters at Owensboro, Ky.

* * *

F. P. Zoch, of San Antonio, Tex., prominent in the oil development of the Church-Fields territory of Crane and Upton Counties, West Texas, was a Tulsa visitor last week.

* * *

W. W. Orcutt, vice president of the Union Oil Company of California, has returned from a business trip to Mexico City and is back in his office in Los Angeles, Calif.

* * *

R. V. Hanrahan, president of the Humble Pipe Line Company at Houston, Tex., was a business visitor at San Antonio, Tex., in connection with the company's pipe line work.

* * *

Julius C. Livingston, president of the Mazda Oil Company, and J. M. Stone, production superintendent of that company, made a recent inspection tour through the Pecos country.

* * *

S. L. Cronnin, head of the Pure Oil Company's land department, in Texas and New Mexico, has returned to his headquarters in Fort Worth following a trip through West Texas.

* * *

J. T. Duce, economist and geologist of The Texas Company, is spending a few weeks in California looking over the local situation but will probably return to New York in the near future.

* * *

J. B. Christner, formerly with the state geological survey at the University of Texas at Austin, has accepted a place as representative of the Roxana Petroleum Corporation at Brenham, Tex.

* * *

Tom M. Hunt, of Bowling Green, Ky., and George L. Kerr of Olean, N. Y., are doing some wildcat work northeast of Hartford, in Ohio County, Kentucky, and east of the Sunnydale Field.

* * *

Jack Doyle, head of the land department of the Humble Oil & Refining Company at Shreveport, La., for the North Louisiana and Arkansas division, visited company headquarters at Houston, Tex.

* * *

Addison B. Day, former executive vice president and general manager of the Los Angeles Gas & Electric Corporation, has just been made president of the corporation succeeding William Baurhyte, who is retiring after spending 45 years in the public utility business. Mr. Day, the new president of the Los Angeles Gas & Electric Corporation, entered the employ of this concern in 1895 in a minor capacity.

David B. Carson, sales manager, development division, Central Alloy Steel Corporation of Massillon, Ohio, accompanied by L. S. Allen, district sales manager of Tulsa, is calling on the trade in the Mid-Continent.

* * *

T. M. Magee, retired superintendent of the Southwest Pennsylvania Pipe Line Company, and Mrs Mary Bovard, his sister, have returned from Florida where they spent the winter. They are now at their home in Bovard, Pa.

* * *

A. A. Spearin, of Lawrenceville, Ill., and formerly with the Indiana Pipe Line Company, in the Kentucky Field until the sale of the line to the Illinois Pipe Line Company, is back in Owensboro, Ky., and will try operating in the field.

* * *

Burns & Son, of Robinson, Ill., are visiting the Ohio, Daviess and adjoining counties of western Kentucky, and will do some test work in the Jones Pool, about 3½ miles west of Whitesville, in Daviess County. Mike Phalin, also of Robinson, Ill., is making a trip over the same areas.

* * *

Flying a monoplane owned by the Moody-Seagraves oil interests, O. B. Seagraves of the Dixie Gas & Fuel Company, and a party of three left Shreveport, La., after a brief business visit with local representatives of the company, and Maj. B. A. Hardy, of the Muslow Oil Company.

* * *

Franklin S. Wade, widely known on the Pacific Coast as an executive and leader in the gas industry, has been elected president and general manager of the Southern Counties Gas Company succeeding Ferdinand R. Bain who resigned after 17 years of active service in those positions.

* * *

Howard B. Pyle, for the past two years in the lease and land department of the Roxana Petroleum Corporation, in the East Texas area, has been transferred to the Wichita Falls, Tex., zone where he is in charge of the Roxana's offices in the North Texas division. Mr. Pyle succeeds W. C. Davis who has been transferred to the San Angelo and southwest Texas areas.

* * *

Transcontinental Oil Company officials have been making a tour of the Yates Field holdings in West Texas, and an inspection of the company's refinery at Fort Worth. Included in the party were F. B. Parriott, president; J. M. Holliday, vice president; M. W. Bottomfield, vice president; J. C. Adams, vice president; Ray V. Hennen, chief geologist; H. G. McCracken, vice president of the United Producers Pipe Line Company, subsidiary of Transcontinental; A. J. Slagter, superintendent of refineries, and John C. Ford, superintendent of production.

* * *

Clive Pearson, J. B. Body and Henry W. Masters of London, England, notable British oil financiers, the latter being a director of the Rycade Oil Corporation, and E. L. DeGolyer, New York City, president of the Amerada Petroleum Corporation, have been inspecting Mid-Continent operations. In company with Adrian Moore, vice president, F. J. Winter, attorney, and Fred W. Dallas, field superintendent, all of Houston, Tex., the party inspected the Rycade corporation's Gulf Coast holdings, particularly the new field opened recently at Bayou Boullion, in St. Martins Parish, Louisiana. After a visit to Tulsa the party left for a trip over West Texas fields.

* * *

A party of officials of the Dutch-Shell interests, the Shell Union Oil Company, and the Roxana Petroleum Corporation, has just completed a tour of the Mid-Continent oil fields. The party was composed of J. V. August Kessler, of The Hague, one of the managing directors of the Royal Dutch company; J. C. Van Eck of New York, vice president of the Shell Union company; F. Godber of St. Louis, Mo., president of the Roxana Petroleum Corporation; Dr. Van Holst Pellekaan, St. Louis, Mo., in charge of the Roxana's geological work; George S. Rollin, manager of production for the Roxana; E. G. Allen, Dallas, Tex., division superintendent of production, central division; F. A. Roark, division superintendent of the northern division, and Angus McLeod of the central division geological department. The party inspected the West Texas fields, and journeyed to Oklahoma, visiting the Roxana properties in Logan County before returning to St. Louis.

"OILWELL" QUALITY ASSURES ECONOMY

Sold to Phipps and Campbell in May 1913-

This "OILWELL" Boiler is another evidence of what is meant by "OILWELL" Quality Equipment.

Built and sold in 1913, it has a record of 15 years of service and continuous exposure to the weather, *and is still doing duty.*

61 wells have been drilled with it and numerous other wells cleaned out, the only expense during this long service being a few new flues.

Unusual records for Quality and Service of "OILWELL" Equipment have always been a factor in the choice of the careful purchaser of oil field equipment.

Branch Stores in all Oil Fields

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

EQUIPMENT AND SUPPLIES

DEVELOPS METHOD OF MAKING ELASTIC BOLT

Through the development of the preformed type of wire rope, which makes possible the attachment of fittings by the processing method that compels the fitting to become an integral part of the rope, the American Cable Co. has perfected the Tru-Lay-Tru-Loc flexible bolt illustrated by the accompanying line drawing.

These new bolts may be used where rigid U-bolts are impracticable; for example, as auxiliary hangers for power shafts, suspension brackets for overhead steam or water piping, shackle bolts for temporary wall boxes, tanks, etc., for scaffolding and tackle, on various parts of machinery, and in other places where semiflexible connections are necessary.

TRADE LITERATURE RECEIVED

"Nickel Alloy Steels for Roller Bearings," a 4-page bulletin issued by the International Nickel Co., New York, gives details of construction of these bearings carrying heavy loads at high speeds, with tables showing the physical properties of the materials used to meet this severe service.

The April "Yellow Strand," published by the Broderick & Bascom Rope Co., St. Louis, Mo., contains a picture of the Hartman A-3 well in the Ventura Field, California, at which rope manufactured by this company landed 6,700 feet of casing weighing 45 pounds to the foot. Putting it another way, the line hoisted 1¼ miles of casing weighing 150¾ tons.

The "Harvester World" for April has an illustrated page showing how the parts of the tractors manufactured by the International Harvester Co. are assembled.

A folder issued by the Parkersburg Rig & Reel Co., Parkersburg, W. Va., describes and illustrates a recent addition to the Parkersburg line, a structural steel tower for separators.

The Superheater Co., New York, is mailing a booklet on "Elesco-operation," in which are given facts about Elesco Superheaters for power plants.

The April number of "The Columbian Crew" contains interesting accounts of various uses of the ropes and twines manufactured by the Columbian Rope Co., Auburn, N. Y.

A new catalog has just been issued by the Oster Manufacturing Co., Cleveland, Ohio, containing many pictures illustrating pipe-threading equipment and its use.

Bulletin 2C, sent out by the Irving Iron Works Co., New York, describes the Irving Subway Safkar running board for tank cars.

The March-April number of "The Modern Fire Chief," published by the American-La France and Foamite Corp., Elmira, N. Y., contains illustrated articles in the interest of fire protection engineering.

"A Slick Way to Drill" is the title of a circular mailed by the Patterson-Ballagh Corp., Los Angeles, Calif., describing the Bettis Casing Protector.

M'GUNAGLE REPRESENTS OCECO

W. H. McGunagle has been made Mid-Continent sales representative for the Oil Conservation Engineering Co., with offices at 417 South Boulder Street, Tulsa. J. A. Stough, who for six years has represented OCECO in this territory, will devote all of his time to the Stough Tank Erecting Co., of which he is president. Mr. McGunagle for the past five years has been connected with the home office of the Oil Conservation Engineering Co. in Cleveland.

CONVERSE PROMOTED BY DEARBORN CHEMICAL CO.

E. M. Converse has been appointed sales manager of the Dearborn Chemical Co., Chicago, succeeding W. A. Converse, secretary and chemical director, who has served as director of sales in the stationary department for many years, and who will now devote more of his attention to matters of general company operation.

E. M. Converse started as a laboratory assistant in 1902. He was trained in chemistry and chemical engineering at

E. M. Converse

Armour Institute and Northwestern University.

In 1906 he was given charge of inspection of materials by the Dearborn Chemical Co. In 1908 and until 1918 he was on the road as a sales and service man. He was then appointed manager of the specialties department of the company. In assuming his new duties, the two departments will be merged and Mr. Converse will be sales manager for both departments.

Phil S. Stover, Oklahoma and Kansas representative of the R. & J. Dick Co., Inc., made a business trip to the Greater Seminole area.

PUMPING STATIONS TO HAVE ELECTRIC POWER

In a few months the Shell Pipe Line Corp. will equip its pipe line from McCamey, Tex., to Cushing, Okla., with 14 electrically driven pumping stations, equipped by the Westinghouse Electric & Manufacturing Co. In each station will be placed an incoming line panel and three motor starting panels of the reduced voltage starting type, to match each of the three motors to be installed, one motor serving as a standby unit. The motors are squirrel-cage induction type with a rating of 400 horsepower, 2,200 volt, 3 phase, 60 cycle, 1,750 r.p.m., and they will be connected directly to the centrifugal pumps.

By dividing the distance between McCamey and Cushing into 14 intervals a high velocity of flow between stations can be maintained, because the oil is pumped forward in a steady stream. This smoothness of movement or constant stream of flow from the centrifugal pumps has a tendency to lessen the occurrence of blown gaskets and leaks in the line, thereby lowering maintenance. Furthermore, it gives flexibility of operation, and ease in installing.

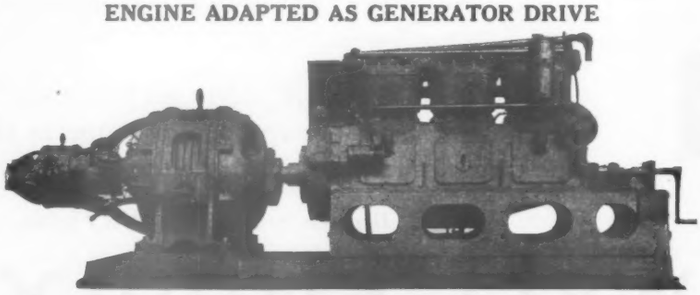
ANDREWS MOVES OFFICE

The Andrews Steel Co., Newport, Ky., manufacturer of Asco special steel for drilling and fishing tools, announces that its Tulsa, Okla., offices have been moved from 502 Cosden Building to 503 Philtower Building. Harry J. Walker, assistant general manager of sales, is in charge of the office.

MADE DISTRICT MANAGER

C. R. Baker, for many years in charge of the Indianapolis plant of the American Car & Foundry Co., has been appointed district manager of the Coffeyville, Kans., and East St. Louis, Ill., plants of the new Acme Tank Car Corp. Mr. Baker has had many years' experience in tank car repairing and rebuilding, in connection with his work for the American Car & Foundry Co. His headquarters in the new position will be in Coffeyville, Kans. H. D. Hines of East St. Louis, Ill., has been appointed local manager of the new Acme Tank Car Corp.'s plant in that city.

ENGINE ADAPTED AS GENERATOR DRIVE



Climax Model R6U engine installed on cast iron rails with extension base, direct connected to 75KW 3-phase 60-cycle 240-volt Westinghouse generator with exciter.

The Climax Engineering Co. of Clinton, Iowa, has adapted its large model R6U engine as a generator drive, mounting the engine on cast iron side rails which in turn can be set on a concrete or cast iron sub-base, whereby the generator can be direct connected to the engine through a flexible coupling which is cushioned with rubber thereby eliminating undue shocks.

The engine can be supplied with or without radiator cooling and with a water-cooled exhaust manifold, which is particularly adapted for service where there is exceptionally heavy and long service or where room temperatures are high.

Another feature is the electric starter whereby this large engine can be started simply by the touch of the starter button. It is also equipped with dual ignition, both battery and magneto, insuring reliability at all times.

DALLAS OFFICE OPENED

J. E. Kobernik, vice president and general manager of the Engineering Research & Equipment Co., 655 Roosevelt Bldg., Los Angeles, Calif., announces a Mid-Continent manufacturing branch in Dallas, Tex. The Wyatt Metal & Boiler

J. E. Kobernik

Works of Dallas will manufacture Ereco plants according to Engineering Research & Equipment Co.'s specifications for distribution in the Mid-Continent and Gulf Coast Fields, and the Dallas office will be in charge of Mr. Kobernik, who will maintain personal contact with various Mid-Continent points.

BUSINESS NOTES

Eugene W. Hough, vice president and director of sales of the Naylor Spiral Pipe Co., Chicago, manufacturer of Toncan pipe, is making a survey of the Mid-Continent territory.

D. C. Royce, general sales manager of the Buckeye Traction Ditcher Co., Findlay, Ohio, accompanied by J. B. Simmons, of Dallas, Tex., southwest district manager, was calling on the trade in Tulsa recently. Mr. Royce was on his way back to Findlay from the Pacific Coast.

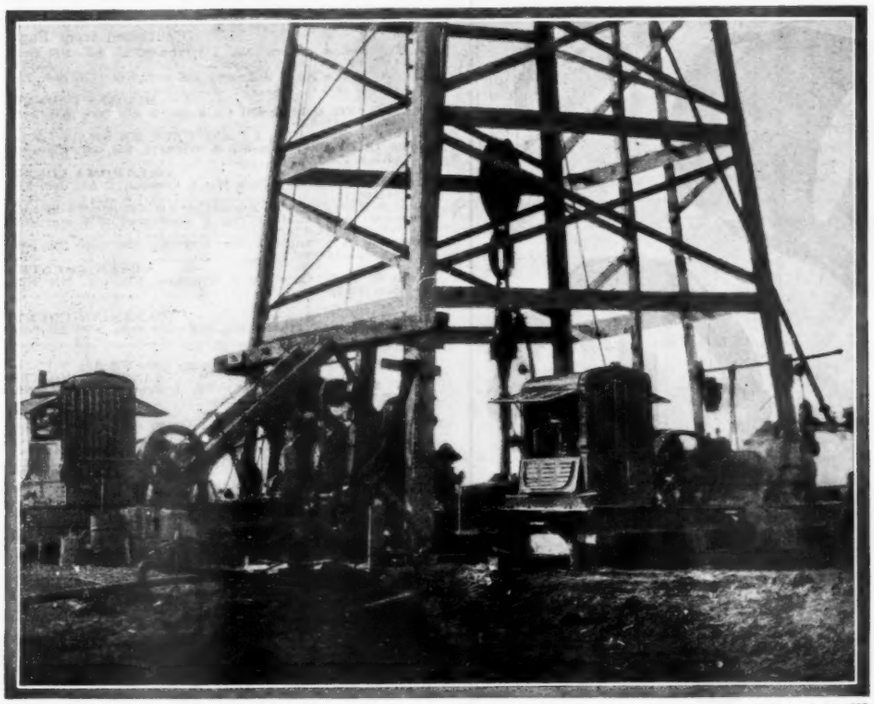
The Foxboro Co., Foxboro, Mass., will exhibit at the Natural Gas Convention in Dallas, Tex., automatic controllers for pressure temperature and rate of flow, including several new types for gas distribution problems. Typical of these is an automatic demand pressure controller which increases or decreases the pressure as the demand at the far end of the line rises or subsides.

Walter A. Olen, president and general manager of the Four Wheel Drive Auto Co., Clintonville, Wis., has completed a two-months trip to Europe in the interests of his company.

O. W. Young, formerly with the western division sales office of the Ryatt Roller Bearing Co., Newark, N. J., has been appointed chief engineer and will take up his new duties at the company headquarters in Newark. Mr. Young joined the Hyatt organization in 1915 as sales engineer.

The Peerless Supply Co. of Tulsa has been made Oklahoma distributor of the C. H. Hollup Corp., Chicago, manufacturer of arc welders and Wanamaker coated electrodes.

W. C. Norris, manufacturer, of Tulsa, is about to open a new warehouse on the Frisco tracks in Fort Worth, Tex. The concern, which makes swedge nipples and bull plugs, has been occupying a rented warehouse, but increased business necessitated larger quarters.



p-816-XL

Waukesha 100-*P. H. Oil Field Power Units on a Rotary Rig*

With Our Southern Neighbors

Profiting from years of experience with Waukesha Oil Field Power Units in Texas and Oklahoma, you will find that the more prominent oil producers in South America also have Waukesha equipment.

Distance lends enchantment, also trouble and expense if the equipment chosen does not stand up. Waukesha engines are used throughout the world, operating where water, fuel and competent or experienced help is unavailable. They have an enviable record for both power and reliability. Why take chances when far from your base of supply? Specify Waukesha Oil Field Power Units for your exploration equipment. Write for Oil Field Bulletin No. 629, describing them.

P-825-XL

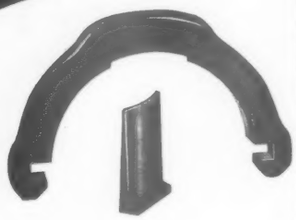
OIL INDUSTRY EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

New York 8 W. 40th St. | Tulsa C. F. Camp Co. | Houston Portable Rig Co. | San Francisco C. A. Watts

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

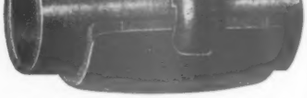


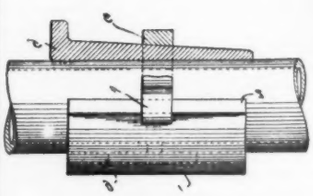
Speed and Security!

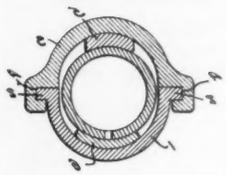
A hammer is the only tool needed to install these new Eilar Clamps.

Tried and proven--there is nothing like them on the market that compares in economy, simplicity and strength.

Eilar Clamps are made from high grade malleable iron in all standard sizes.







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ALIGNMENT TOOLS

Can be obtained from your Supply house or direct from the

EVANSVILLE MALLEABLE CASTING COMPANY

EVANSVILLE, - - - INDIANA

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 48)

Roles:one and others' No. 1 Hixon, CNL SE NE Sec. 1-13-19 ..... Drilling 2,104 ft.
J. L. Slusher's No. 1 Johnson, NE cor. SW NW Sec. 20-15-20 ..... Machine.

HUGHES COUNTY

Texas-Pecific Coal & Oil Co.'s No. 1 Stewart, SW cor. SE Sec. 11-5-8 ..... Casing 2,550 ft.
W. J. Monahaim's No. 1 Pusby, C NW NE Sec. 14-4-9 ..... Location.
Noble Oil & Gas Co.'s No. 1 Wickett, SE cor. SE Sec. 20-5-9 ..... Underreaming 1,390 ft.

OKLAHOMA COUNTY

Cromwell Oil & Gas Co.'s No. 1 Proctor, C SE Sec. 21-14-3w ..... Shut down 4,075 ft.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w .. Cleaning out 3,800 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Fishing 4-inch liner, 6,840 ft.
Cromwell & Franklin's No. 1 Gross, SW cor. NE SW Sec. 22-10-2w ..... Shut down 4,702 ft.

CREEK COUNTY

Lima O. & G. Co.'s No. 1 Grayson, NW cor. NE NE, Sec. 11-14-7 ..... Dry and abandoned, total depth 4,020 ft.

CANADIAN COUNTY

T. B. Slick and others' No. 1 Pazowrech, NW SE Sec. 29-13-5w ..... Hole full of water 4,338-4,452 ft.; shut down 4,580 ft.
Ramsey Brothers' No. 1 Newman, CSL NE Sec. 9-11-7w.. Standardizing 4,491 ft.

LINCOLN COUNTY

Bu-Vi-Bar Petroleum Co.'s No. 1 School Land, C NE SE Sec. 16-13-4 ..... Shut down 4,500 ft.

OKFUSKEE COUNTY

Prairie Oil & Gas Co.'s No. 1 Gray, SW cor. SW Sec. 19-11-7 ..... Dry and abandoned 4,825 ft.
Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.

SEQUOYAH COUNTY

Citizens Gas Co.'s No. 1 Johnson, NE SW NE Sec. 33-12-7 ..... Drilling 1,110 ft.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Spudded and shut down.
Western Natural Gas Co.'s No. 1 Green, SW cor. SE Sec. 17-11-17 ..... Machine.

POTTAWATOMIE COUNTY

Shaffer-Kilgore-Sykes' No. 1 Ives, C SE SE Sec. 12-10-3 ..... Fishing 5,256 ft.
Prairie Oil & Gas Co.'s No. 1 Lambley, SW NW SE Sec. 1-10-5 ..... Dry and abandoned 4,780 ft.
Central Commercial Oil Co.'s No. 1 McCrain, NW cor. NE SW Sec. 16-10-5 ..... Dry and abandoned 4,791 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Fishing 4,365 ft.
Davy & Detrick's No. 1 McGehee, SW SE NW Sec. 10-6-2 ..... Fishing 4,998 ft.
Amerada Pet. Corp.'s No. 1 Gravel, SW SE NE Sec. 1-8-4 ..... Fishing 4,252 ft.

CADDO COUNTY

Magnolia Petroleum Co.'s No. 1 Shelby, SW cor. SW Sec. 28-10-12w ..... Drilling 2,475 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rig.

OSAGE COUNTY

Prairie Oil & Gas Co.'s No. 1, SE cor. NE Sec. 11-24-6 .. Sand 2,694-97 ft., pumping 15 bbls.
Devonian Oil Co.'s No. 1 NW cor. SE Sec. 18-22-8 ..... Shut down 3,115 ft.

SEMINOLE COUNTY

T. B. Slick's No. 1 School Land, SE cor. SE Sec. 16-6-5.. Drilling 2,250 ft.
Roxana and Barnsdall's No. 1 Stidham, NW cor. NE Sec. 6-10-7 ..... Location.
Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7.. Rig.
Prairie Oil & Gas Co.'s No. 1 Varnum, NW cor. SW SW Sec. 5-9-6 ..... Wilcox sand 4,441-42 ft., water, plugging back to Hunton lime.
The Texas Company's No. 1 Reed, SW cor. SW Sec. 12-8-5 ..... Wilcox sand 4,720 ft.; hole full of water; dry and abandoned.
Twin State Oil Co.'s No. 1 Walker, NE cor. NE Sec. 5-7-6 ..... Rig on ground.
Simon & Bean's No. 1 Palmer, SE cor. NW NE Sec. 7-7-6 ..... Rigged up and shut down.
Barnsdall Oil Co.'s No. 1 Guinn, SW cor. SW Sec. 16-7-5.. Spudded.
Indian Terr. Ill. Oil Co.'s No. 1 White, NE cor. NE SW Sec. 21-7-5 ..... Drilling 1,900 ft.
Reiter-Foster Oil Co.'s No. 1 Coat, SW cor. NW SW Sec. 14-7-6 ..... Spudding.
Indian Territory Illuminating Oil Co.'s No. 1 Marshall, NW NW SW Sec. 32-7-7 ..... Drilling 4,769 ft.
Magnolia Petroleum Co.'s No. 1 Vierson, SE SE NW Sec. 5-6-7 ..... Drilling 3,770 ft.
Gardner Petroleum Co.'s No. 1 Unknown, NW cor. SE Sec. 36-6-7 ..... Dry and abandoned 3,008 ft.
Fuhrman Petroleum Co. and Superior Oil Co.'s No. 1 Davis SW SW SE Sec. 7-10-6 ..... Location.
C. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Drilling 480 ft.
Blackwell Oil & Gas Co.'s No. 1 Mitchell, SE cor. NE SW Sec. 6-10-7 ..... Spudded.
E. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Drilling 2,620 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Section 18-10-7 ..... Rig.
Sands Pet. Co. and others' No. 1 Harrison, SW cor. SW SE Sec. 4-7-7 ..... Rig.
Tidal Oil Co.'s No. 1 Foster, SW cor. SE SE Sec. 7-7-7.. Rigging up.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ..... Shut down 3,870 ft.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,800 ft.

ATOKA COUNTY

G. S. Cochran's No. 1 Hampton, NW cor. NW Sec. 27-1-14 ..... Rig.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-21w ..... Shut down 300 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.; may start up soon.
Bedner and others' No. 1 Willis, C SW NW Sec. 13-7-5w ..... Shut down 2,450 ft.
Nichlos & Page's No. 1 Drake, SE NE SE Sec. 7-5-7w... Shut down 1,900 ft.
Wirt Franklin Petroleum Co.'s No. 1 Garden, SE cor. SW NE Sec. 1-4-7w ..... Sand 2,003-13 ft.; 1,000,000 ft. gas
Commercial Development Co.'s No. 1 Chrisman, C NE NE Sec. 21-4-7w ..... Drilling 1,000 ft.
Magnolia Petroleum Co.'s No. 1 Pursley, SE SW NW Sec. 8-4-6w ..... Dry and abandoned 3,905 ft.
Simpson & Fell's No. 1 Long, SW cor. SE SE Sec. 36-5-7w ..... Rig.
Galt Brown Oil Co.'s No. 1 Burrey, C NW NE Sec. 14-4-9.. Drilling 1,200 ft.

M'INTOSH COUNTY

Marlone Oil Co.'s No. 1 Sanders, NW cor. NE SW Sec. 10-9-18 ..... Shut down 2,250 ft.

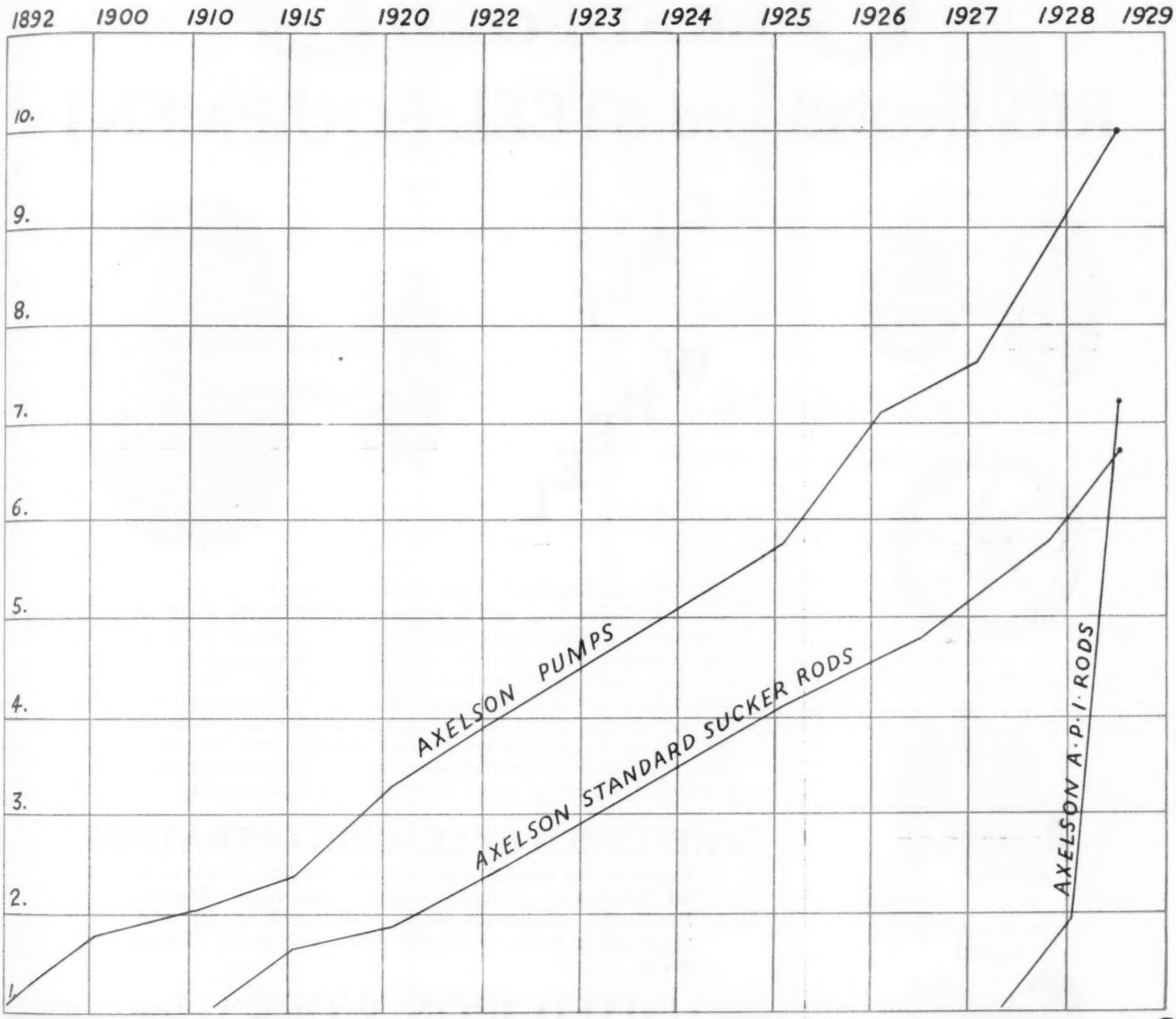
CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 16-7-1w ..... Drilling 2,310 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ..... Drilling 525 ft.
Gould and others' No. 1 Patton, NW cor. SW SE Sec. 17-5-14w ..... Dry and abandoned 380 ft.
Johnson & McDowell's No. 1 Thompson, SW cor. NE Sec. 6-6-15w ..... Spudded.
Dave Malernec's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ..... Casing 490 ft.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ..... Shut down 1,127 ft.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY



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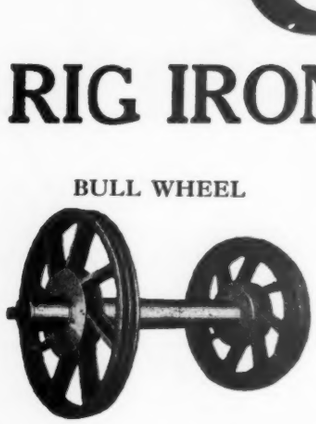
UNITED BRADFORD

RIG IRONS and STEEL EQUIPMENT

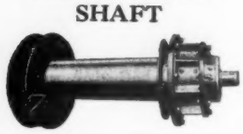
BULL WHEEL



BAND WHEEL

CROWN BLOCKS

CALF WHEEL SHAFT



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The "United-Bradford" Calf Wheel is made 7½′ in diameter with a 9″ brake face and is equipped with shafts of 16″ or 18″ diameter with wall thickness of ½″ or 1⅛″. Arms of the wheels are riveted to steel flanges and assembling is done by placing wheel on shaft and bolting steel flanges to hub. Bolts are very accessible and nuts can be tightened with an ordinary wrench. No part can get out of line through rough handling in transporting. Ease of Assembly, Correct Design and Construction, Perfect Alignment and Balance, insures a smooth-running, long-lived Calf Wheel of great strength and dependability.

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Rig Iron and Steel Equipment satisfaction is insured to all purchasers securing their needs from "United-Bradford." Enormous stocks maintained in all principal active fields to supply your rush needs without delay.

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Manufacturers of RIG IRONS and STEEL EQUIPMENT STEEL TANKS DRILLING MACHINES SWAB BARRELS

PONTOTOC COUNTY

Gillespie & Gant's No. 1 Taylor, SW SW SE Sec. 13-5-4..Sand 2,818-52 ft., water; plugged back 2,570 ft., shot 80 and 20 quarts; swabbed 39 bbls.; shut down.
T. B. Slick's No. 1 Barnett, NE SE NW, Sec. 13-5-6....Drilling 3,910 ft.
Mid-Continent Petroleum Corp.'s No. 1 Harjo, SE NE NE Sec. 14-5-7 .....Sand 2,618-22 ft.; 10,000,000 ft. gas.
T. B. Whitney and others' No. 1 Moore, SW cor. SE Sec. 17-5-9 .....Shut down 2,654 ft.
Winkler and others' No. 1 Timer, C SW SE Sec. 31-5-9..Shut down 2,761 ft.
R. F. Garland's No. 1 Strickland, SW NW SW Sec. 10-4-3 .....Shut down 2,650 ft.
Marland Oil Co.'s No. 1 Lawrence, C SW SE Sec. 10-4-4..Dry and abandoned 2,196 ft.
C. J. Shervin and others' No. 1 Wright, NW NE NE Sec. 13-4-6 .....Shut down 1,935 ft.
Boles and others' No. 1 Rayburn, SW SE Sec. 35-4-6....Shut down 1,340 ft.
Texas-Pacific Coal & Oil Co.'s No. 1 Stewart, C SW SE Sec. 11-5-8 .....Underreaming casing 2,310 ft.
Henry and others' No. 1 Gregg, SW SE NW Sec. 14-4-7..Shut down 1,090 ft.
Oklahoma Portland Cement Co.'s No. 1 Mathews, C SW NW Sec. 24-4-7 .....Drilling 1,790 ft.

GARVIN COUNTY

Dixie Oil Co.'s No. 1 Perkins, SE NW Sec. 15-4-1 .....Drilling 5,130 ft. in sand, hole full of water.
Magnolia Petroleum Co.'s No. 1 Vaughn, NW SW NW Sec. 12-3-1 .....Drilling 5,402 ft.
Heath & Bauman's No. 1 Hattell, SW SE SW Sec. 10-3-3 .....Shut down 1,640 ft.

COMANCHE COUNTY

Jolly-Ogg Oil Co.'s No. 1 Neeley, SE NE Sec. 24-3-10w ....Drilling 2,370 ft.
Ashcraft and others' No. 1 School Land, SE cor. SE Sec. 20-2-10w .....Broken sandy lime 822-954 ft.; swabbed 3 bbls.; total depth 975 ft.; shut down; material moved out.
Jenkins and others' No. 1 Smith, SW cor. SE SE Sec. 34-1-10w .....Shut down 1,530 ft.
Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w..Reaming pipe 3,315 ft.

COAL COUNTY

McGraw and other's No. 1 Patton, SW SE NE Sec. 35-1-8 .....Drilling 1,138 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Harris, SW cor. NW Sec. 10-1-11 .....Fishing 1,630 ft.

OKLAHOMA PANHANDLE

CIMARRON COUNTY

Phillips and others' No. 1 Unknown, NW cor. NW Sec. 24-6-2 .....Shut down 4,340 ft.
Sinclair Oil & Gas Co.'s No. 1 School Land, NW cor. NW Sec. 22-5-2 .....4,872 ft., will plug.
Ramsey Brothers' No. 1 School Land, NE SW SW Sec. 21-5-5 .....Drilling 3,755 ft.
Ramsey Brothers' No. 1 Unknown, NW NE Sec. 27-5-5...Shut down 4,100 ft.
Ramsey Brothers' No. 1 School Land, SE SE Sec. 34-4-1..Drilling 3,850 ft.
Gladys-Belle Oil Co.'s No. 1 Iserial, SW NE Sec. 25-3-7...Plugging 4,392 ft.
Valerius & Wilkinson's No. 1 Unknown, SE cor. NE Sec. 25-3-7 .....Drilling 2,545 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 Zea, NE SW Sec. 28-3-13 .....Shut down 3,765 ft.
Skaer and others' No. 1 Mathis, SW NE NE Sec. 17-3-23..Drilling 3,227 ft.
Ross Fenton and others' No. 1 Graves, NE NE Sec. 2-2-9..Spudded and shut down.

TEXAS COUNTY

Danner Oil Co.'s No. 1 Graves, NE cor. SW SW Sec. 23-2-18 .....Shut down 700 ft.
Newsom and others' No. 1 Allison, SE SE Sec. 4-1-13.....Shut down 4,040 ft.
Dotton and others' No. 1 Baker, C NW Sec. 4-1-13.....Rig blown down.
H. & H. Oil Co.'s No. 1 Hitch, NE cor. NE Sec. 26-1-15...Shut down 600 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18...Hole full of water at 3,318-58 ft.; shut down.
Conley and others' No. 1 Unknown, SE cor. NW Sec. 5-1-19 .....Spudded and shut down.
Texas County Gas Co.'s No. 1 Bacon, C NE NE Sec. 17-3-15 .....10,000,000 ft. gas 2,606-42 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Green Oil & Ref. Co.'s No. 1 Kemp, SE cor. NW NW Sec. 28-8s-9 .....Shut down 600 ft.
Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 .....Shut down 1,425 ft.

JEFFERSON COUNTY

J. R. McCoy and others' No. 1 Smith, SE cor. NW Sec. 14-7s-6w .....Rigged up and shut down.
W. Bassett's No. 1 Johnson, NE NW Sec. 15-6-4w .....Location.
Amerada Petroleum Co.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w .....Reaming casing 755 ft.
Wirt Franklin Petroleum Co.'s No. 1 Foster, CNL NW SW Sec. 35-4S-4e .....Rig and tools.

CHOCTAW COUNTY

Hugo Gay's No. 1 Smith, SE cor. SW NW Sec. 27-6s-16...Shut down 1,540 ft.
Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 .....Shut down 1,346 ft.

TILLMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w .....Drilling 650 ft.
A. N. Pearson's No. 1 Mounts, SW cor. SW Sec. 3-8s-15w..Rig.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-16w .....Drilling 2,540 ft.

MARSHALL COUNTY

Laurel Oil & Gas Co.'s No. 1 Chas. Ine, SE NW Sec. 26-4s-5 .....Dry and abandoned 4,190 ft.
Magnolia Petroleum Co.'s No. 2 Marshall, SW cor. NW SW Sec. 26-5s-7 .....Drilling 620 ft.
Alter and others' No. 1 Brown, NE cor. NW NW Sec. 11-4-6 .....Dry and abandoned 201 ft.

STEPHENS COUNTY

Pierce & Brown's No. 1 Garland, SE NW NE Sec. 34-2s-5w .....Shut down 1,700 ft.
Ward, Martin & Smythe's No. 1 Vestal, NE cor. SE Sec. 7-3-7w .....Rig.

JOHNSTON COUNTY

McPherson and others' No. 1 Wyand, CSL NE NW Sec. 7-2s-9 .....Shut down 4,440 ft.
Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 .....Shut down 1,530 ft.

CARTER COUNTY

Grooms and others' No. 1 Morris, CSL NW NE Sec. 19-1s-2w .....Shut down 2,463 ft.

MURRAY COUNTY

Thompson Oil Co.'s No. 1 Freeman, SE cor. Sec. 27-1s-2.. Rig.
Gilcrease Oil Co.'s No. 1 Wolf, SE cor. NE Sec. 20-1-2....Drilling 1,600 ft.
Revels & Magee's No. 1 Labor, NW cor. NW Sec. 17-1-2. Shut down 240 ft.
Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7..Spudded.

KANSAS WILDCATS

(Continued from Page 50)

DICKINSON COUNTY

Franks & Johnson's No. 1 Schlessner, C SW NE Sec. 18-16-4 .....Spudded.
McBride & Goen's No. 1 Shirley, NE cor. SW Sec. 21-12-4 .....Dry and abandoned 2,469 ft.
Phillips Petroleum Co.'s No. 1 Grayler, SE cor. NW Sec. 11-14-4 .....Drilling 1,200 ft.

ELLIS COUNTY

Derby Oil Co.'s No. 1 Weigel, C NW Sec. 25-2-17w.....Set 12-inch casing 1,260 ft.
J. H. Tatlock et al's No. 1 Leiker, NW cor. NE NE Sec. 26-13-16w .....Dry and abandoned 3,507 ft.

GEARY COUNTY

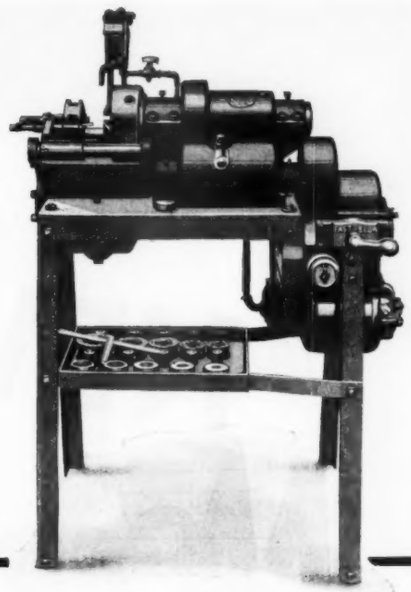
Pioneer Oil Co.'s No. 1 Chase, SE cor. SE Sec. 10-12-7....Drilling 1,800 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, SE cor. NE SW Sec. 27-8-25w .....Shut down 3,460 ft.

GREENWOOD COUNTY

Carnes & Bly's No. 1 Smith, NE cor. SE Sec. 4-24-13.....Dry and abandoned 1,801 ft.
Eureka Oil Co.'s No. 1 Brothers, SE cor. NW Sec. 35-23-11 .....Drilling 2,489 ft.
C. A. Devine's No. 1 Bradford, SW cor. NE Sec. 22-26-11 .....Shut down 600 ft.



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Just 13 seconds to thread ½" pipe; 8 seconds to cut it off; 16 seconds to thread 1" pipe; 10 seconds to cut it off; 30 seconds to thread 2" pipe and 15 seconds to cut it off. Actual working figures that can be reproduced regularly with the "TOLEDO" No. 1000M power pipe machine. Instant change from cutting to threading and vice versa. Instant change of dies from one size to another. Pipe is reamed as thread is cut, chamfered as it is cut off. Easy and quick chucking of pipe. These are only a few of the many features of the "TOLEDO" No. 1000M high-production pipe machine for ⅛" to 2" pipe. It is equipped with a Universal motor that will operate from a lamp socket on any 110 volt current. One of these machines will soon pay for itself wherever small pipe is cut or threaded.

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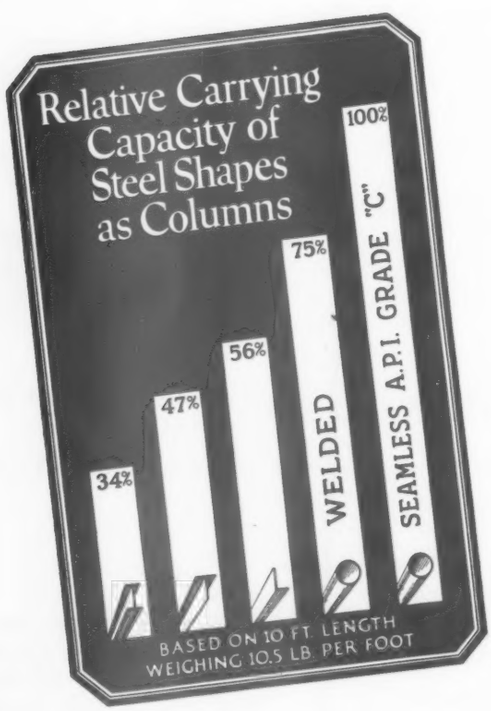
YOUR COPY OF THE NEW "TOLEDO" CATALOGUE IS NOW READY FOR YOU. A POST CARD BRINGS IT.

The NEW Moore Champion

A SUPER DERRICK



SEAMLESS STEEL TUBING FOR COMPRESSIVE STRENGTH

SEAMLESS STEEL

TUBULAR LEG SECTIONS

Moore prestige is built on leg sections of tubular steel—the most efficient shape for column loading. The New Moore Champion Derrick, not only has tubular legs, but tubular legs of the highest quality seamless steel.

In most steel structures, structural shapes are used throughout because they are most conveniently joined. In the Moore Champion Derrick, this limitation does not exist, by reason of the Moore clamp design which makes the joining of tubular legs and structural bracing convenient and easy.

Moore Champion leg sections are of seamless steel, 40-50 carbon, with a minimum yield point of 45,000 pounds per square inch. This is A. P. I. Grade "C"—the best.

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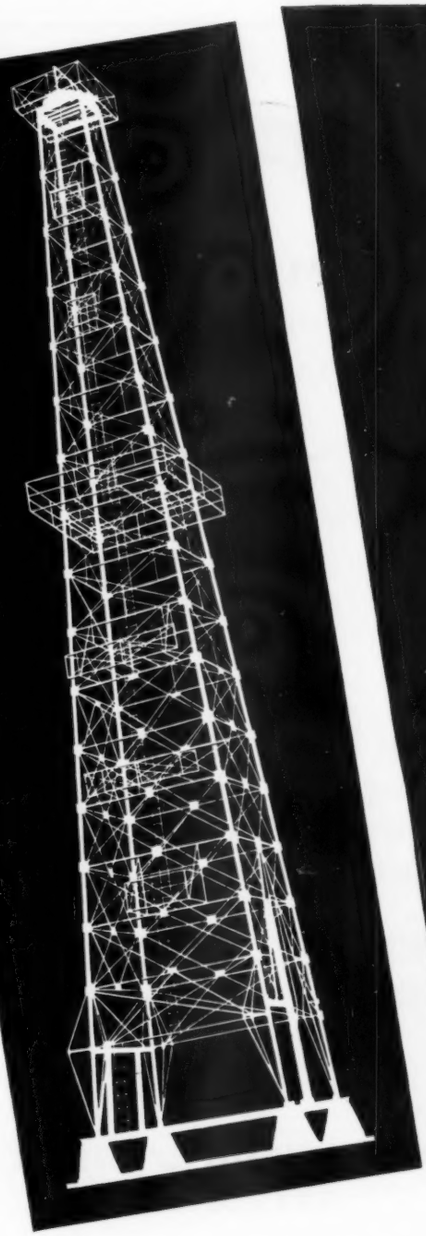

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Cracking Units Refineries
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Pumps Vapor Lines
Crane Flanges, etc.

COPPER ALUMINUM
ARMCO MONEL

—

McCord Radiator & Mfg. Co.
DETROIT

Hanley and others' No. 1 Peterson, NW cor. NE SE Sec. 4-26-13 ..... Spudded.
C. E. Hawk's No. 1 Lessman, SE cor. SW Sec. 14-21-10 ..... Dry and abandoned 3,197 ft. completed.
R. H. Hood and others' No. 1 Butler, C SE SE Sec. 15-26-11 ..... Drilling 650 ft.
T. C. Johnson's No. 1 Knox, NE cor. NW Sec. 8-23-13 ..... Shut down 1,705 ft.
Kismet Oil Co.'s No. 1 Richardson, SW cor. NE SW Sec. 26-22-11 ..... Location.
Rockhill and others' No. 1 Jones, SW cor. NE Sec. 21-26-13 ..... Rig.
Sharpless and others' No. 1 Corder, SW cor. SE SE Sec. 22-23-12 ..... Shut down 1,310 ft.
Smith & Rockhill's No. 1 McDair, NW cor. SE Sec. 20-26-12 ..... Dry and abandoned 1,903 ft.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C SE SE Sec. 24-34-6w ..... Drilling 4,910 ft., crooked hole.
Sam Jarvis' No. 1 Wyckoff, SW cor. NW Sec. 11-34-4w ..... Drilling 4,570 ft, flat hole; will shoot to straighten.
Sam Jarvis' No. 1 Warneke, SE cor. SW Sec. 4-34-3w ..... Shut down 4,207 ft.

HARVEY COUNTY

Roxana Pet. Corp.'s No. 1 Haury, NE cor. SW SE Sec. 11-23-2w ..... Rig.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

James Madison's No. 1 Ballein, SW cor. NW NW Sec. 21-28-5 ..... Drilling 3,610 ft.

LANE COUNTY

Robinson and others' No. 1 Dickerson, SW cor. NW SE Sec. 11-18-27w ..... Shut down 2,625 ft.

LOGAN COUNTY

W. H. Koons', Trustee, No. 1 Edwards, NW cor. NW Sec. 14-14-33w ..... Corrected to 3,855 ft., dry and abandoned.

MARION COUNTY

Anderson Brothers' No. 1 Benth, SE cor. SW SW Sec. 31-18-5 ..... Dry and abandoned 2,680 ft.
Franks et al's No. 1 Wright, SW cor. NW NW Sec. 9-19-4 ..... Rig.
Givens and others' No. 1 Ucker, SW cor. NE Sec. 31-17-4 ..... Underreaming 1,820 ft.
Graham Bros.' No. 1 Nelson, NE cor. SE Sec. 30-17-5 ..... Sand 2,295-2,340, pumping 60 bbls oil and 15 bbls. water.
T. C. Johnson's No. 1 Thompson, SW cor. NE Sec. 26-17-4 ..... Drilling 2,150 ft.
Raymond Gear's No. 1 Larson, NW cor. SW NW Sec. 18-21-4 ..... Spudded.
Sun Ray Oil Co.'s No. 1 Lehrman, SW cor. NE SE Sec. 1-21-4 ..... Drilling 3,280 ft.
Shearer & Reardon's No. 1 Strouse, SW cor. NW NE Sec. 14-18-4 ..... Rig.

MEADE COUNTY

Blackwell Oil & Gas Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w ..... Drilling 3,362 ft.

MORRIS COUNTY

Cress & Hawley's No. 1 Grendier, NW cor. SE Sec. 16-15-5 ..... Fishing tools 1,400 ft.
Hugh Faulder's No. 1 Wendt, SW cor. SE SE, Sec. 18-15-5 ..... Rig.
Fisher & Louck's No. 1 Stroda, NW cor. SE Sec. 6-16-5 ..... Dry and abandoned 2,659 ft.
Franks & Farrell's No. 1 Wendland, SW cor. SE NE Sec. 20-16-5 ..... Drilling 1,773 ft.
Graham Brothers' No. 1 Nelson, NE cor. SE Sec. 30-17-5 ..... Drilling 1,420 ft.
Matthews and others' No. 1 Walters, SW cor. NE Sec. 14-15-5 ..... Drilling 500 ft.
Moss & Nelson's No. 1 Smith, SW cor. SW Sec. 18-16-5 ..... Rig.
Skelton and others' No. 1 Iles, NW cor. NW Sec. 25-16-5 ..... Rig.

McPHERSON COUNTY

Phillips Petroleum Co.'s No. 1 Wright, SW cor. NW NW Sec. 9-19-4 ..... Spudded.
D. I. Hall's No. 1 Gray, NW cor. SE NW Sec. 20-20-3w ..... Spudded and shut down.
John Heron's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Spudded.
C. W. Lamer's No. 1 Lamer, SE cor. SW Sec. 1-17-3w ..... Underreaming 3,495 ft.
Gurley & Lamer's No. 1 Paulsen, SE cor. NW Sec. 6-19-2w ..... Drilling 1,455 ft.
The Texas Company's No. 2 Chinberg, NE cor. NE NW Sec. 32-18-2w ..... Sand 2,343-77; swabbing 25 bbls.
Danciger Oil Co.'s No. 1 Willem, NW cor. SE SE Sec. 6-22-4w ..... Rig abandoned.

OSBORNE COUNTY

Prather-Davis-Krueger's No. 1 Pruter, SW cor. SE Sec. 30-9-15w ..... Shut down 3,360 ft.

PAWNEE COUNTY

Frank Hopper and others No. 1 Seifers, NW cor. SW NE Sec. 23-21-11w ..... Shut down 4,170 ft.
F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w ..... Shut down 1,700 ft.

POTTAWATOMIE COUNTY

J. J. Crawford's No. 1 College, CWL SW NE Sec. 11-10-12 ..... Shut down 2,250 ft.

RENO COUNTY

Danciger Oil & Refining Co.'s No. 1 Williams, NW cor. SE SE Sec. 6-22-4w ..... Moved in tools.
Stearns-Streater & Marshall's No. 1 Crabb, SE cor. SW NE Sec. 1-25-8w ..... Rig abandoned.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.

RILEY COUNTY

Mutual Oil Co.'s No. 1 Marks, SE cor. NE NW Sec. 26-10-6 ..... Shut down 2,400 ft.

ROOKS COUNTY

Keys Petroleum Co.'s No. 1 Rathburn, NE cor. SW Sec. 14-9-16w ..... Shut down 3,030 ft.
Krueger and others' No. 1 Poore, NE cor. NE Sec. 14-8-16w ..... Spudded and shut down.
Stearns & Streather's No. 1 Matheson, NE cor. SE NW Sec. 28-10-16w ..... Drilling 3,462 ft.

RUSH COUNTY

Valerious & Chenney's No. 1 Sheverman, NW cor. SE NW Sec. 27-17-17w ..... Spudded and shut down.

RUSSELL COUNTY

Douglas Oil Co.'s No. 1 Stoppel, SE cor. SW NE Sec. 25-14-11w ..... Rig.

SALINE COUNTY

Mente Oil & Gas Co.'s No. 1 Muir, SW cor. SW Sec. 17-15-2w ..... Underreaming 3,205 ft.

SEDGWICK COUNTY

Bu-Vi-Bar Pet. Co.'s No. 1 Wright, SE NE SE Sec. 12-26-1w ..... Spudded.

SEWARD COUNTY

T. B. Slick's No. 1 Pyle, NE cor. NE Sec. 14-33-33w ..... Shut down 3,200 ft.

SHERMAN COUNTY

A. L. Henson and others' No. 1 Murry, NE cor. SE NW Sec. 22-7-4w ..... Shut down 2,650 ft.

SMITH COUNTY

Smith & Buchner's No. 1 Rice, SW cor. SW Sec. 18-5-15w ..... Rig.

STRATFORD COUNTY

Randall-Johnson's No. 1 Richardson, NW cor. SW Sec. 24-22-11w ..... Spudded and then abandoned.
Kismet Oil Co.'s No. 1 Richards, SW cor. NE SW Sec. 24-22-11w ..... Location abandoned.

SUMNER COUNTY

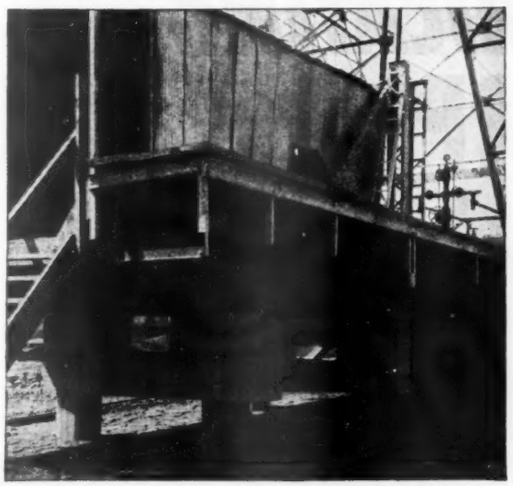
Helmerich & Payne's No. 1 Broadhurst, SE cor. NE NE Sec. 15-33-2e ..... Timbers.
Otstot and others' No. 1 Barlow, SE cor. SE Sec. 22-33-3w ..... Shut down 1,860 ft.
Gypsy Oil Co.'s No. 1 Douglas, NE cor. SE NW Sec. 23-34-2w ..... Top Wilcox, 4,493 ft.; total depth 4,500 ft; estimated 200 bbls.; shut down.

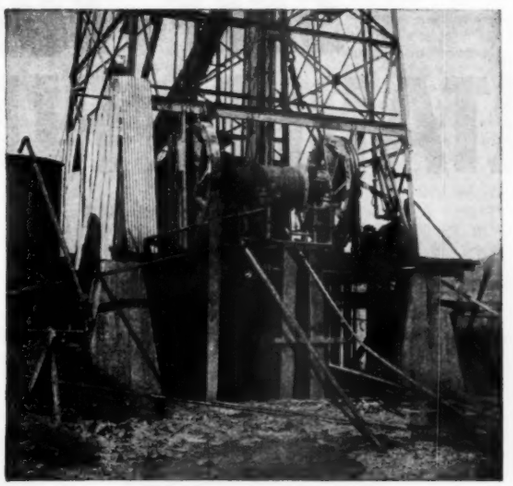
TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Spudded and shut down.

WABAUNSEE COUNTY

Empire Gas & Fuel Co.'s No. 1 Schuaem, SE cor. SE Sec. 19-13-11 ..... Fishing 3,330 ft.





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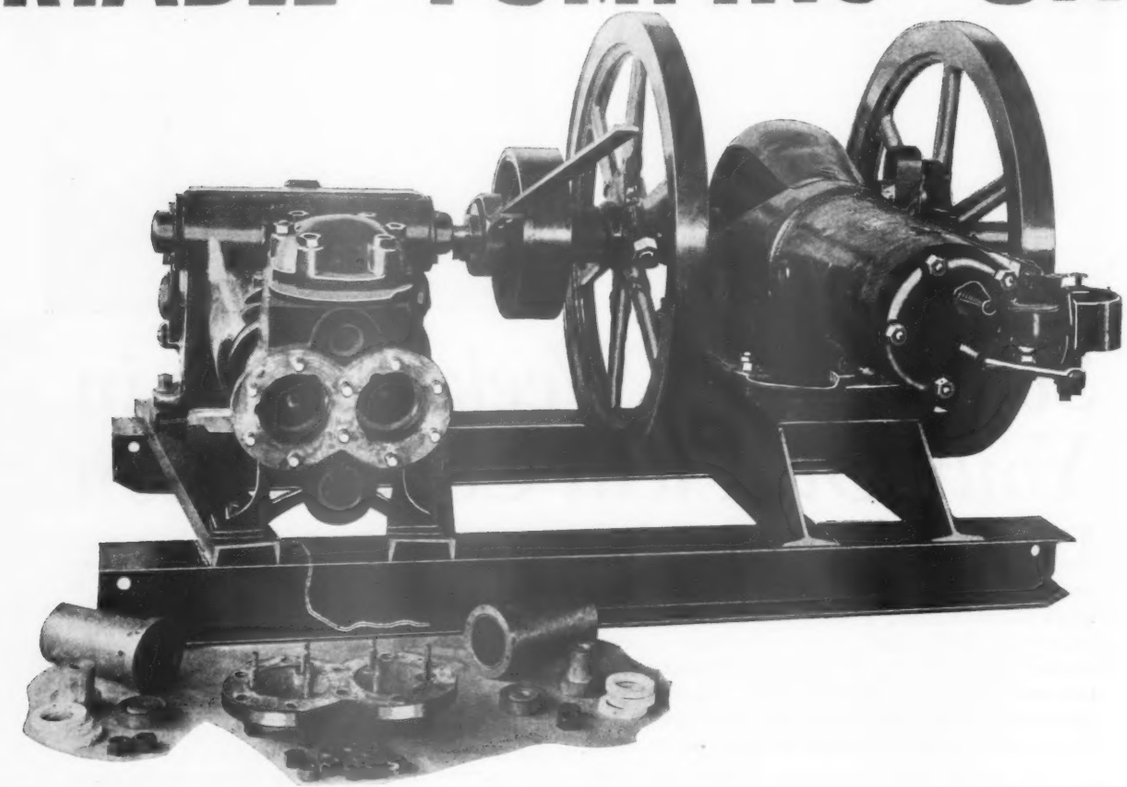

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CONTINENTAL

SOUTHWEST WILDCATS

(Continued from Page 52)

each standing, the first at 756 and the other at 250, leaving only two wells, The Texas Company's No. 1 M Guerra and J. V. McAleese's No. 1 Hicks & Hicks drilling, the first at 1,687 feet and the other at 250 feet.

One other wildcat is starting up. It is the Holden and others' No. 3 Jones in Jim Hogg County resuming at 2,548 feet. One of the interesting things about this well is that it is due south of the Driscoll new pool in Duval County and the folds are supposed to extend north and south. Sands in the Holden No. 2 Jones were found thick and had a little gas and oil showing. The interest is whether this well will pick up the same sand and production as in the Driscoll wells which also got thicker sands than in the pools to the west.

Pure Oil Co.'s No. 1 J. D. Smythe, in the southwestern part of Uvalde County, at 2,378 feet is interesting. It got 5 feet of coal at 2,260-65 feet in the Edwards lime, something unusual and never before encountered in the Edwards. It is in black bituminous limestone at 2,378 feet and is underreaming the 10-inch casing.

Due south of it in the northwestern part of Dimmit County, Humble company is down to approximately the sand depth in No. 2 City National Bank. No. 1 developed several million feet of gas at about 1,468 feet when the casing was shot off at that depth. No. 2 is drilled to prove up the territory and if it makes a successful gas well it will mean some development work around there.

Duval County

National Oil Co.'s No. 1 Ball, Survey 16, located 450 feet to north line and 150 feet to east line, is standing at 2,212 feet. Houston Oil Co.'s No. 1 Woods-Welder, Survey 233, located 1,750 feet to west line and 100 feet to north line, is drilling at 2,995 feet.

Hidalgo County

Queen City Oil & Gas Co.'s No. A-1 Adams, Survey 82, located 2,640 feet to north line and 1,320 feet to east line, has set 10-inch casing at 60 feet.

LaSalle County

Southwestern Petroleum Corp.'s No. 1 H. Beckwith, 1,320 feet south of Nueces River and 1,388 feet to northwest lines of Survey 19, is drilling at 700 feet.

Jim Hogg County

M. I. Shaw and others' No. 1 Jones, Survey 381, Block 12, located 171 feet to south line and 486 feet to west line, is standing at 2,004 feet.

Starr County

The Texas Company's No. 1 M. Guerra, Porcion 68, Block 91, located 1,000 feet to east line and 150 feet to south line, is drilling at 1,600 feet. No. A-1 V. Guerra, Porcion 68, Block 92, located 150 feet to south and east lines, is drilling at 165 feet. J. V. McAleese and others' No. 1 Hicks & Hicks, Perdernal grant, 150 feet to northeast lines and southeast lines, is drilling at 220 feet. Kusch Exploration Co.'s No. 1 Frank Doyno and others, Block 13 of Porcion 75, is at 747 feet fishing for drill stem.

Zapata County

Hill, Reiser & Weed's No. 1 H. Rodriguez, Block 1 of R. V. Hill Subdivision of the Villa grant, 870 feet to northwest lines and 450 feet to northeast lines, is rigging up.

Bexar County

Allen Burnam's No. 1 Ward, A. A. Gardiner Survey, southwest of Martinez, is drilling at 1,100 feet in base of Taylor marl. Larsen-Walsh and others' No. 1 Oppenheimer, Survey 180, located 330 feet to south line and 330 feet east of center, is drilling at 1,940 feet, probably in the Georgetown. F. H. Meyer's No. 1 B. Biering is rigging up.

Bastrop County

Gypsy Producing Co.'s (formerly James O'Hara) No. 1 Pritchett has resumed drilling at 1,950 feet. J. F. Miller Drilling Co.'s No. 1 Ed Jones, 150 feet to north and east lines of 34.5-acre tract, is drilling at 150 feet. Rundus & Landua's No. 1 Frank Rundus, Bartens Creek and Smithville-Cistern road, is rigging up.

Bee County

D. Hewitt's No. 1 G. A. Ray, northeast of Pettus, is shut down at 2,410 feet waiting on orders; No. 1 Schultz is drilling at 1,200 feet. Red Ant Oil & Gas Co.'s No. 1 Perry & Chesnut, B. Q. Hadley Survey, is drilling at 1,200 feet in tough gumbo.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line of survey, is fishing at 214 feet. Robert Rodson's No. 1 Glasscock, Survey 50, located 150 feet to CEL at 435 feet, is moving in cable tools to drill through rock.

Caldwell County

Joseph Bruner and others' No. 1 Davis, A. Floyd Survey, 1 mile north of Luling, at 2,683 feet total depth first 24 hours flowed 42 bbls. in two heads though packer failed to hold and is now being reset; No. 1 Wilson, A. Floyd Survey, about 400 feet north of No. 1 Davis, is shut down after spudding in to wait outcome of No. 1 Davis. Louis P. Schawe's No. 1 Ted Schawe, Thomas Maxwell Survey, 6,111 feet to southeast lines and 6,986 feet to northeast lines and 8 miles west of Lockhart, at 769 feet in top of chalk, is showing considerable gas, specks of serpentine in the chalk. Trinity Drillers' No. 1 Miears, C. M. Cannon Survey, 150 feet to south and west lines at 1,999 feet total depth is standing, 30 feet of serpentine at 1,996 feet, and may set casing and make a test.

DeWitt County

Durbin Oil Co.'s No. 1 Gohmert, G. W. Brooks League, 175 feet to north line and 300 feet to east line, is shut down at 3,013 feet. Empire Southern Oil Co.'s No. 2 Smith, Survey 3, located 3-4 miles west of No. 1, is shut down at 3,105 feet. H. T. Roe's No. 1 Lienhard, D. J. Bibb Survey, is shut down at 950 feet.

D'mmitt County

Humble Oil & Refining Co.'s No. 2 City National Bank, Survey 25, L.I.M. &C., 150 feet to north line and 860 feet to west line, is drilling at approximately 1,450 feet and near the depth of the gas found in No. 1.

Gonzales County

W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part of lease and 12 miles northwest of Yoakum, is drilling below 2,400 feet. W. G. Malone's No. 1 Mrs. D. G. Staton, 3½ miles south of Slayden, is drilling. The Texas Company's No. 1 Denman, A. Zumwalt Survey, 100 feet to south and west lines, is in hard sand at 457 feet.

Edwards County

Devil's River Oil & Gas Co. has made location for a deep test in the C of E half of Section 164, C.C.S.D.&R.G.N.G. Survey.

Guadalupe County

O. W. Killam's No. 1 Lynch, M. Miller Survey, 150 feet to south and east lines, is drilling at 2,100 feet. J. M. Rentz' No. 1 Siligman & Freeman, Gustavus Chotwe'l Survey, 1,100 feet to southwest lines of farm and survey and 1,130 feet to southeast lines of farm and 6 miles west of Prairie Lea, is shut down at 690 feet with no chalk yet.

Hays County

J. E. Rodgers' No. 1 Earnest Hohenburg, 2½ miles east of San Marcos, is shut down at 2,189 feet.

Jackson County

J. B. Douglas is drilling water well in preparation to drilling No. 1 C. O. Lowrance, 12 miles northwest of Edna.

Jim Wells County

Cushing Oil & Gas Co.'s No. 1 M. Perez, La Tinaja Survey, 600 feet to north and east lines of survey and 6 miles west of Alice, is drilling at 1,016 feet in hard red sticky shale.

Karnes County

Reynosa Oil Corp.'s No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is still fishing at 2,007 feet.

Kerr County

Walker-Van Dyn's No. 1 Barfield, B. B. Peck Survey, 4,700 feet to north line and 450 feet to east line, is shut down at 2,100 feet.

Live Oak County

Houston Gulf Gas Co.'s No. 2 Lark, E. W. B. Scrugham Survey, 155 feet to east line and 100 feet to north line of Subdivision No. 105, spudded in and set two joints of surface casing. War. Wood Hunt's No. 1 McNeil, Jane Curry Survey, 4,000 feet to northeast corner and 3,000 feet to northwest lines, is deepening from 2,137 feet.

Medina County

R. P. O'Brien's No. 1 Nixon, Survey 531, 1,945 feet to west line and 833 feet to south line at 1,080 feet pumped two days and second day made 8 bbls., now standing at 1,080 feet. Yantis and others' No. 1 Saathoff, Gerhard Ihnken Survey No. 40, located 155 feet to south and west lines, is drilling at 700 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, center, is drilling at 4,400 feet in lime. Rycade Oil Corp.'s No. 1 Chittim, Section 129, Block 7, is shut down at 4,295 feet; No. 2 Chittim, Section 158, Block 7, is drilling at 4,180 feet in lime.

McMullen County

Houston Gulf Gas Co.'s No. 6 Jacob is location.

San Patricio County

Harry Carter has derrick up for No. 1 Mayfield. Houston Gulf Gas Co.'s No. 2 Waelder, Calixto Survey, east central part of lease, is drilling at 1,125 feet. National Oil Co.'s No. 1 Sullivan, J. C. McMullen Survey, 500 feet to southwest corner, is putting in control head at 2,330 feet. George Pickett's No. 1 Whitworth, NW NW Section 60, is drilling in hard formation at 3,000 feet; No. 1 Garrett is standing at 3,030 feet. John Sigmund's No. 10 Robinson, 60 feet south of No. 9, is deepening from 1,900 feet.

Travis County

T. P. Garrett's No. 1 Paul Rowe, R. Hornsby Survey, 900 feet to north and east lines, is shut down at 1,025 feet showing sulphur water. W. J. Hill's No. 3 fee is shut down at 400 feet.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythe, Survey 687, located 740 feet to north line and 146 feet east of southeast corner of Survey 20, topped Georgetown at 1,847 feet, from 2,260-65 feet had vein of coal, 2,265-2,315 feet hard white limestone, 2,315-2,378 feet black bituminous limestone showing asphalt and with odor of oil and showing little gas and is now underreaming to lower 10-inch casing.

Victoria County

J. J. Elam's No. 1 Vol Kutchka, 200 feet south of center of north line of Section 40, is at 1,420 feet with hole caving.

Val Verde County

Valvert Oil Corp.'s No. 1 Bassett, C NE Section 47, Block Y, is moving on. East Del Rio Oil Co.'s No. 1 Russell, Section 183, is shut down at 3,325 feet. Independent Operators' No. 1 Whitehead, Section 30, Block 4, is shut down at 3,900 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Section 81, is drilling at 6,556 feet. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is shut down at 4,210 feet. W. V. Traves' No. 1 Wilson, Section 115, is shut down at 905 feet.

CALIFORNIA FIELDS

(Continued from Page 61)

of the field within the next 30 days and the Associated will probably bring in Nos. 20, 24 and 100 on the Lloyd lease. The Shell has No. 25 Gosnell, No. 24 Taylor and two or three others listed for early completion. There are 24 strings of tools in operation in the Ventura Avenue Field at the present time and with new wells being started from time to time it is quite probable that the production of this field will continue at its present level for several months, notwithstanding the fact that a curtailment in production will be in effect. It is believed that the initial output of new wells will just about offset the normal decline in production during the next several months provided of course that existing conservation measures continue in force, as the output of this field would show a very substantial increase if present restrictions were lifted.

Rincon

The General Petroleum Corp. focused the attention of operators on the possibilities of the Rincon Field of Ventura County by finishing two new wells in that area during the early part of last week and this oil will mark the initial run through the company's recently constructed Rincon pipe line which extends from that field to the city of Ventura and thence eastward to the Associated's tank farm in the Ventura Avenue Field. The General Petroleum is utilizing the Associated's submarine pipe line at Ventura harbor and the crude from Rincon will be comingled with the former's production at Ventura Avenue, which aggregates approximately 4,000 bbls. per day. The two new wells completed by the General Petroleum were No. 1 Hobson, which came in flowing 1,380 bbls. of 30.5 gravity oil and 850,000 feet of natural gas daily from 3,316 feet, and No. 1 Tomson, which was brought in flowing 1,095 bbls. of clean 30.6 gravity oil and 900,000 feet of wet gas daily from 3,233 feet. These wells are flowing under an average pressure of 550 pounds on the casing and, unlike previous completions in this field, the gas is showing a casinghead content of a little better than 2 gallons for each 1,000 feet of gas.

The General Petroleum more than doubled the production of the Rincon Field by bringing in these two new wells and while their completion indicates the possibility of developing commercial production in the shallow zone around the 3,250-foot level operators are more vitally interested in the projected test of the 3,950-foot level to be made by the Pan American within the next day or two as this may change the entire outlook. No. 2 State of the Pan American is the most important drilling project in the Rincon Field at the present time as it is expected to throw considerable light on the potentiality of the oil horizon encountered around the 4,000-foot level. The cement has just been drilled out of this 3,954-foot hole and if a satisfactory water shutoff has been effected it will be immediately passed for production. The importance of this test lies in the fact that practically every other well in the field at the present time will be immediately deepened if substantial production is developed and while there is rather pronounced tendency on the part of operators in this field to mark time pending further developments an intensive deepening campaign will get under way at once with this new zone as an objective if favorable production is encountered below the 4,000-foot level.

Mount Poso

The much needed and long anticipated pipe line which would open up the Mount Poso and possibly also the Round Mountain Field will soon become a reality and according to a well authenticated report this projected line will be in actual operation during the early part of the coming summer unless something unforseen develops in the meantime to prevent its utilization. Several surveys were completed last year and while the Union Oil Co. was seriously considering the advisability of providing an outlet for the Mount Poso Field this was subsequently given up due to the fact that the company did not desire additional production of heavy crude. The Union was in a very favorable position in this instance as its productive acreage in this field was owned in fee and it could therefore sit back and wait developments in as much as there are no stringent lease requirements to be fulfilled. The Shell planned to utilize the Union's projected facilities on an exchange basis and when the latter gave up its intention of laying a new line from Mount Poso to its Maltha refinery at Bakersfield the former surveyed a route of its own and would probably have carried this to completion if the demand for heavy crude and fuel oil had justified it.

The failure of the Union and Shell to provide adequate pipe line facilities out of the Mount Poso Field will make it practically obligatory for the General Petroleum to lay a line as drilling obligations call for continuous production and development on its Glide lease in the Granite Canyon area in the extreme southern part of the Mount Poso Field. It will be recalled that the General Petroleum finished the first producer at Granite Canyon a few months ago by

bringing in No. 1 Glide in Section 21-27-28 doing 500 bbls. per day from 1,738 feet just previous to the completion of the Union's No. 1 Tribe in Section 28-27-28 which was brought in doing 275 bbls. per day from 1,781 feet. The former has subsequently completed No. 9 Glide, a 550-bbl. well from 1,874 feet, and No. 7, another new well, has just come in flowing 510 bbls. per day from 1,690 feet. The Signal Gasoline Co. has also finished a new well in the Granite Canyon section of the Mount Poso Field, this concern's No. 1 in Section 27-27-28 being completed as a 400-bbl. well from the 1,638-foot level during the latter part of March.

It has not been definitely ascertained whether the General Petroleum's new line will be routed via the Round Mountain Field but this will probably be done if the company succeeds in securing commercial production in No. 1 Conry, its first well in this field, which is located in Section 30-28-29. If the general Production extends its Mount Poso line to Round Mountain or lays another line from the latter field to its main trunk via the Edison Field, which is located 7 miles east of Bakersfield, it may provide an outlet for the production of the Shell and Honolulu Consolidated, both of which have already successfully finished several commercial producers at Round Mountain. The Shell is only doing a limited amount of development work at Round Mountain, but the Honolulu has several wells under way at the present time. This company recently completed No. 79 in Section 18-28-29 as a 450-bbl. well from 2,289 feet and has just brought in No. 47 in the same section flowing 485 bbls. per day from 2,360 feet.

Richfield

The Union Oil Co. added 2 wells to its list of producers in the Richfield district during the past week and it is quite likely that several additional completions will be chalked up within the next 30 or 60 days, although development work in this area is being held down to a minimum. The company's latest acquisition is No. 12 Stern, which came in under a natural flow doing 365 bbls. of 21.2 gravity oil daily from 4,597 feet, the hole having been finished with a 6¼-inch oil string. No. 11 Stern, the other well put on production by the Union during the week was given a preliminary production test from the 4,326-foot level during the latter part of last January but drilling was subsequently resumed due to the relatively small production secured at that time, 150 bbls. per day. Drilling was concluded last week and it has been returned to production making 285 bbls. daily from 4,624 feet. No. 5 Stern, another former shallow producer on this property, will probably be listed for completion within the next two weeks. The Continental Oil Co. is making preparations to bring in No. 5 Kraemer and the outlook at 5,179 feet is quite promising as the bit has been in the pay for some time. The Continental expects to spud in No. 1 Mullin as soon as No. 5 Kraemer has been completed.

Drilling operations in the Brea Olinda, or Fullerton Field have reflected the intensive development work at Long Beach with the result that only a limited number of drilling projects are under way at the present time. This restrictive work has naturally resulted in a smaller number of completions and although no increase is anticipated in development work, a check indicates the probable completion of several new wells during the next 30 days. The Shell should bring in No. 7 Fisher and No. 14 Orange in the near future and two new wells are scheduled to be started when these crews are released. Three new wells, No. 17 Orange of the Shell, No. 13 Naranjal of the Union and No. 15 Fullerton of the Birch Oil Co. are expected to be spudded in within the next two or three weeks. Two new wells, Nos. 41 and 42 on the Emory property of the Standard, are also scheduled to get under way in the West Coyote Field where the Petroleum Securities recently spudded in No. 1 McNally, a projected deep sand test offsetting productive acreage of the former.

Midway-Sunset

The Republic Petroleum's banner well in the Midway-Sunset Field, which was brought in doing 1,061 bbls. per day from the 2,704-foot level several weeks ago after being redrilled and deepened from the shallow zone at 800 feet, is holding up with unusual regularity, in fact the current production, 1,250 bbls. per day, is 189 bbls. in excess of the initial output. This recompletion, No. 25 in Section 8-32-23, has aroused considerable interest in the possibilities of this immediate area and if the several wells now headed down for the Republic sand develop substantial production it is quite possible that this section of the Midway-Sunset Field will experience a revival of work. The Republic spudded in No. 31, a new well in Section 7-32-23, a short time after the completion of No. 25 and it will probably be given an early test some time within the next 30 days as these 2,700-foot holes can be drilled within a short time. The cost, incidentally, is also relatively small and operators in this area can therefore be expected to spud in a number of new wells if subsequent developments warrant.

The Chanslor-Canfield Midway Oil Co. is also making a bid for production in the relatively shallow zone encountered by the Republic and success should attend its efforts unless the immediate area is unusually lenticular, such as characterized the structure in the vicinity of the Obispo's well in Section 32-12-23, which blew in doing around 4,000 bbls. per day from the Maricopa brown shale a few years ago. The Chanslor-Canfield interests are redrilling and deepening No. 39, a former shallow producer in Section 8-32-23, and this project, together with No. 4, a new well in Section 7-32-23, should pick up the Republic sand in the near future. The Richfield Oil Co. may also encounter this sand in Section 6-32-23 and although its No. 8 is in the pay at 1,195 feet it will probably be carried down for a deep conclusive test in as much as the upper zone only yields relatively small production. The Franco-Western Oil Co. completed its No. 9 at McKittrick in Section 8-32-22 and this new well was brought in pumping 150 bbls. per day from 2,472 feet, the hole having been finished with a 6⅝-inch oil string.

Kern River

There were no new wells finished out in the West Front of the Kern River Field during the past week and the recent curtailment of heavy oil in this section practically precludes anything more than a limited number of new wells for the next several months as it is the intention of operators to drill projected completions down to the top of the pay and suspend operations until operations are resumed. The California Petroleum has followed out this procedure by suspending drilling operations on Nos. 6, 13, 14 and 15 in Section 14-28-28, the entire quartet having been cemented on top of the pay during the early part of the week. Nos. 4, 9 and 10 will probably also be drilled down to the pay in the near future as the curtailment agreement limiting production does not eliminate development work provided additional producers are not completed. The Chanslor-Canfield Midway Oil Co. also suspended drilling operations on several new wells during the week and they will be allowed to stand suspended just above the pay until the restriction on production has been lifted. George F. Getty and the Petroleum Securities each has one well which will be put on a production test before being shut in, the procedure in this instance being due to the fact that the pay had been encountered before the drilling agreement had been reached in this area.

Northern California Wildcats

The Pacific Eastern Production Co. spudded in two new wells in the field which it recently discovered at Fruitvale, located a few miles northwest of Bakersfield in Kern County, and both projects are practically assured of production as the discovery has been a very consistent producer averaging around 200 bbls. a day since completion. The two holes recently spudded in will undoubtedly throw considerable light on the trend of the Fruitvale structure and, unlike the discovery well which only took a 14-foot penetration, these tests are scheduled to open up a larger amount of sand, although it is not the policy of the company to develop substantial production until conditions improve. Southeast of the Fruitvale Field, the Pacific Eastern is testing out another likely looking structure with a good prospect of success, although it may take another well or two to definitely locate the apex of the field at this point. No. 2 Union Avenue, the well in question at this point, is undergoing a production test at the present time after being plugged back from 4,500 to 4,308 feet.

There were no developments of special importance in the Buttonwillow area during the week although J. E. McAdams' wildcat in Section 26-29-23 has taken on a rather doubtful look at 6,010 feet. The General Petroleum has resumed drilling in No. 1 Kerwin, the discovery well in the Edison Field, located 6 or 7 miles east of Bakersfield and although this well has a potentiality of 150 bbls. of 15.5 gravity oil per day it will be carried down for a deep test in search of more substantial production. The Midway Northern and Superior Oil Co., both of which are drilling in this general area, made good footage during the week although neither has encountered anything of special significance. J. E. O'Donnel, who is drilling a rather important test in the Greenfield district, near Bakersfield in Kern County, is rotating ahead in a sticky shale at 3,410 feet and while this test has not shown any great encouragement nothing is anticipated above the 4,000-foot level.

The Richfield Oil Co. is making preparations to resume drilling on the wildcat at Semitropic, northwest of Bakersfield, which it recently acquired from the Socal Exploration Co. The Richfield, under the able direction of John (Jack) McKeon, vice president in charge of production, and W. E. (Steve) Dunlap, his assistant and chief geologist, has become one of the most aggressive concerns in the State at the present time and the deal recently closed with the Socal, like other previous transactions, shows excellent judgment and may subsequently be proven a very important move. The Richfield secures the Semitropic Oil Co.'s entire Kerwin lease on Semitropic Ridge northwest of the Fruitvale Field and an additional 560 acres adjoining the original holdings. This area has excellent possibilities especially in view of the fact that it is a strategic interval and in a direct line with the Fruitvale and Union Avenue areas to the south where the Pacific Eastern Production Co. has had exceptional success. In addition to the acreage secured at Semitropic, the Richfield acquires a 50 per cent undivided interest in the Kerwin lease of the General Petroleum at Edison where the latter brought in a 150-bbl. pumper several months ago. An additional 720 acres was also secured by the Richfield in the Edison district but this will not be drilled until developments warrant. The Scott Petroleum did not succeed in making a satisfactory production test of its wildcat at Rincon Creek west of the Rincon Field of Ventura County and further work will be required. The Shell has just undertaken what will be a deep test in the Oxnard district of Ventura County and this wildcat, which is located in Section 26-2-22, will be spudded in shortly. The company will also continue its post hole work in this area in the hope that this structure survey work will reveal the presence of a definite structure.

Southern California Wildcats

The Associated Oil Co. expects to have its No. 2 Cypress at Potrero on production within the next few days and the outlook is exceptionally promising for good production. The Associated's first wildcat in this area did not result in commercial production although it definitely proved the existence of two separate horizons, and for this reason No. 2 is expected to conclusively prove up this new area, which is located between the Rosecrans and Inglewood Fields. Leasing activities in the Westminster area of Santa Ana County have been exceptionally brisk during the past 10 days as a result of two wildcats scheduled to be drilled in that area immediately. Approximately 7,000 acres have already been tied up on liberal terms by the Prairie, Marland, Shell, Standard and The Texas Company, and while geologists are not entirely in accord on the possibilities of this district, which is located approximately 5 miles north of Huntington Beach, operations will nevertheless be watched very closely. The Prairie Oil & Gas Co. has tied up about 2,400 acres in this district with the initial wildcat to be drilled in about the center of Section 13-5-10. The Prairie interests have not officially announced the drilling of this test but in as much as the leases stand in the name of McCollum and Taylor, local representatives of the Prairie, it is logical to assume that this company has undertaken its first test in California. The Texas Company has tied up approximately 2,000 acres radiating from Section 36-4-10 and the contemplated work of this company and the Prairie Oil & Gas Co. has resulted in the tying up of virtually every acre of land from Westminster to the Santa Ana River. George F. Getty is rotating ahead in his Seal Beach wildcat at 4,970 feet and although no unusually promising showings have been logged this test still has a chance of opening up a new field at this point.

CANADIAN FIELDS

(Continued from Page 62)

pieces of formation blown from the hole Dalhousie's No. 1 has only one separator in use, and the crude naphtha recovery is incomplete. A second separator will be put in, and complete recovery provided for, as soon as the well has definitely cleared itself.

Production Test

A definite 24-hour production test of McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, gave 149 bbls. and 14 gallons of crude naphtha but later runs indicate it is now making between 150 and 160 bbls. a day. McLeod's No. 2, same LSD, is making a daily production between 40 and 50 bbls. of crude naphtha. McLeod's No. 4, same LSD, is at 830 feet and drilling. McLeod's No. 3 producer, same LSD, is getting ready to drill to the deep lime; it has been producing from the Blairmore-Dakota at 3,280 feet.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is at 1,796 feet and drilling. Illinois-Alberta's No. 1, same LSD, for the week ending April 7 showed a production of 665.6 bbls. of crude naphtha, averaging 95.1 bbls. a day.

Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, which was frozen throughout March, has thawed itself out, and is again in production, making 110 bbls. a day or better of crude naphtha. Vulcan's No. 2, same LSD, is at 4,855 feet and running casing. Spooner Oils' No. 1, LSD 12, Section 13-20-3w5, is drilling in an extra hard lime formation at 4,955 feet. At this depth the drill is 25 feet below the wet gas horizon which was encountered at 4,930 feet and is still frozen.

Royalite Oil Co.'s No. 6, LSD 16, Section 31-10-2w5, has finished installing the diamond drill outfit from Dalhousie's No. 1, and resumed drilling at 4,280 feet. At this depth the test is close to the top of the Madison lime. Royalite's No. 8, LSD 9, Section 12-20-3w5, is standing cemented at 3,676 feet. Royalite's No. 9, LSD 6, Section 13-20-3w5, is standing cemented at 4,085 feet. Royalite's No. 11, LSD 10, Section 12-20-3w5, is drilling around 1,750 feet. Royalite's No. 15, LSD 1, Section 12-20-3w5, has spudded in. Royalite's No. 16, LSD 2, same section, has spudded in. Both the latter wells are cable tool tests.

In Hard Formation

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is at 4,840 feet in a quartzite stratum. Owing to the excessively hard formation and the steep pitch of the structure, it was found difficult to penetrate this stratum with the cable tools, and a diamond drill outfit has been ordered. This is expected to arrive early in May, when it will be installed and the test carried deeper. Before ordering the diamond drill outfit, dynamite was used to break up the hard formation, but without success. No. 1 should get

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the top of the deep lime around 5,050 feet. The diamond drill outfit will drill a 5½-inch hole. The cable tool outfit used for No. 1 will likely be moved to Okalta's No. 2, the old Indiana-Alberta producer in LSD 8, Section 1-20-3w5; this well is in the Blairmore horizon at 2,774 feet with a reputed pumping production of 10 bbls. a day and will likely be carried to the deep lime, the cable tool outfit being used as far as possible and the hole completed with the diamond drill.

Seneca Oil Co., LSD 1, Section 34-20-3w5, is drilling at 3,870 feet with a little oil coming into the hole, though it has not been determined whether this is a new show or a seepage from the higher levels.

Stockmen Oils' No. 1, LSD 1-2, Section 27-20-3w5, has pulled 1,215 feet of 15½-inch and 195 feet of 20-inch casing. The well has been finished in the gas horizon around 1,760 feet. The equipment has been moved to Stockmen's No. 2, LSD 7, same section, the old Henderson Oils' location, and rigged up; No. 2 will spud in within a few days. Gas from No. 1 will be used for drilling. Calmont Oils, LSD 2, Section 1-20-3w5, has resumed drilling at 5,190 feet, after a considerable shutdown for repairs.

Possibilities of new railroad branches to serve the oil territories of southwestern Alberta are indicated by the renewal of the charter of the Calgary & Fernie Railway Co., which is planned to cross the Turner Valley Field and the Rickert structure, running from Calgary to Fernie, British Columbia. The Highwood-Western Railway Co. has been granted a charter to build a line through the valley of the Highwood River to the Ford coal mine and thence to Sparwood, British Columbia.

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is at 1,935 feet and drilling, with the 8-inch casing carried down close behind the drill.

In the Morley Reserve area, Wabash Oils is reported drilling at 1,050 feet.

On the Rickert structure, Evorne Oils, LSD 4, Section 34-19-4w5 has camp buildings and derrick finished and is reported arranging a contract, the test to spud in before the end of May.

In the Wainwright Field, Fabyan Petroleum, LSD 8, Section 24-45-8w4, which has been shut down at 1,100 feet for the winter, will resume drilling early in the spring. It is understood that Vancouver, British Columbia, interests are financing completion of the test. R. E. Williams, former managing director of the Maple Leaf Oil Co., which supplies gas to Wainwright, is president and managing director of Fabyan Petroleum, Ltd. Fabyan Petroleum's No. 1 is close to the Maple Leaf Oil Co.'s No. 1 gasser.

Kling-Del Refineries, Ltd., is reported arranging to finance completion and early operation of its refining plant at Wainwright, which has been under construction for some months and is nearly completed.

Skiff Field

In the Skiff Field, southern Alberta, two combination standard rotary outfits are being moved to the field for the two tests to be started this month by the Imperial-Devenish interests. The Imperial-Devenish program calls for four additional tests to be drilled before October, 1930; but it is understood that if satisfactory results are secured in the two new tests, the drilling program may be considerably extended. In the Imperial-Devenish tests, the rotary outfit will be used for drilling to the top of the oil sands, around 3,160 feet, and cable tools used for drilling into the sand. The holes will be cased off just above the sand and bailed dry before drilled in. The standard drilling outfit used to put down Devenish Petroleum's No. 1 in LSD 5, Section 27-5-14w4, is being moved to the Turner Valley Field; the outfit, which was furnished by United Oils, Ltd., of Calgary will be used to drill the new United Oils' test on LSD 2, Section 24-20-2w5, in that field. This location is on the east flank of the Turner Valley structure. United Oils, Ltd., will do no development work in the Skiff Field at present. The derrick at Devenish's No. 1 will be left standing. It is understood that Devenish's No. 1 will not be put into steady production until the field is further opened up and a pipe line laid to the railway yards at Skiff.

In the Warner district, Gas Production & Transportation, NE, Section 21-4-18w4, 8-inch casing has been set at 3,340 feet and drilling will be resumed as soon as the cement has set. At this depth the drill is thought to be about 200 feet from the Ellis. Two cable tool outfits have been ordered for additional drilling to be done in the south on acreage of the Canadian Western Natural Gas Co. Extensive core drilling is being carried on with a portable outfit in various localities as a guide in making these new locations. The two new tests will be put down by the Canadian Western company or allied interests.

In the Suffield district, the Ontario-Alberta Development Co. of Toronto is getting ready to start work in Township 17-8w4. H. B. Pearson of Calgary will be in charge of operations. The company has secured a drilling outfit from C. E. Duffield of Redcliffe, which is now being moved to location. The hole will start with 20-inch casing and will be carried to 3,000 feet if necessary. The lease is close to the Canadian National Railway's projected branch between Hanna and Redcliffe.

Coutts Area

In the Coutts area, southern Alberta, it is reported that the Canadian Western Natural Gas Co. of Calgary is planning to drill a test this season on a location west of the old McLean-Mitchell well and east of the Imperial-Red Coulee well. These tests were drilled at the time of the Sweetgrass boom some years ago, when the Quarantine Reserve in Township 1-15-4, was thrown open for leasing. The Coutts-Sweetgrass Oils (McLea-Mitchell) was drilled in Section 1-1-15w4, to a depth of around 2,850 feet, and got some of the gas and oil, but no commercial production. Later this area was given a deep test by Urban Oils, Ltd., in Section 4-1-15w4, which drilled to 3,520 feet and quit in the deep lime without commercial production. A small oil show was met in the deep lime, and traces of gas in the upper horizons. Both these tests were east of Coutts. Imperial Oil, Ltd.'s, Red Coulee No. 1 was drilled in LSD 6, Section 5-1-15w4, west of Coutts; it was abandoned at 2,706 feet owing to water troubles, after getting a very encouraging oil show at around 1,650 feet. Recent drilling operations fairly close to the town of Sweetgrass, Mont., have thrown considerable new light upon the probable extension of the Montana structures into Alberta, and indicate possibilities at certain points between the Imperial-Red Coulee and the McLean Mitchell locations.

East of Coutts, the Western Natural Gas Co. of Montana, drilling on the Townsend lease in Section 21-37-4e, has drilled into production at 1,675 feet, with an estimated flow of 6,000,000 feet a day. The location is in the Sweetgrass Hills, offsetting the Rogers-Imperial gasser on the Alberta side, and the Western-Townsend has apparently tapped the upper sand which was productive in the Rogers-Imperial well. The Western-Pritchard, Section 3-37-2e, is drilling at 1,800 feet; both tests are setting casing which will be carried to the Sunburst horizon, which should be reached at 2,200 feet in the Western-Townsend and 2,300 feet in the Western-Pritchard. The Rogers-Imperial got a second and larger gas production in a lower sand, around 2,700 feet, and finished at 2,797 feet.

In the Chin Coulee district, Lethalta Oils has made a location 4 miles south of Chin and is unloading drilling equipment. The test will spud in early in May. The Anglo-Dutch Oil Co. of Vancouver, B. C., has secured acreage on the Chin structure and will drill a test in Township 8-18w4. The structure was mapped by Dr. M. Y. Williams of the University of British Columbia.

Pincher Creek

In the Pincher Creek district, southwestern Alberta, Alberta Gas & Fuel's No. 1 Doherty, Section 34-2-29w4, is reported running three eight-hour shifts and drilling below 2,000 feet. On the Mill Creek structure, Mount Royal Oil & Gas Co.'s No. 1, LSD 4, Section 7-6-1w5, is getting ready to resume at 1,000 feet.

L. C. West, vice president and manager of the Farm and Ranch Review, has resigned to take the position of managing director of Commonwealth Petroleum, Ltd. The Commonwealth company holds some 29,000 acres of potential oil lands on various Alberta structures, including 18,500 acres in the Turner Valley Field and the Highwood, Milk River Dome and Blood Reserve structures. Only a small part of this acreage is in Turner Valley. The directorate of Commonwealth Petroleum, Ltd., includes Edward Michener, president; R J. Hutchings, Senator W. H. Sharpe, L. C. West, James Robinson, S. A. Annand and D. J. Young. The company is financed largely by eastern capital and is arranging for the development of some of its southern Alberta acreage this season. It has a location in Section 20-19-2w5, in the Turner Valley Field but has so far not undertaken active drilling there.

In Saskatchewan, the Simpson Oil Co., which has an unfinished test in Section 9-29-25w2, near Simpson, standing at 1,400 feet, has secured 3,000 acres of leases near Duval, Sask., and is securing a standard outfit for a test to spud in this spring.

MUSKEGON FIELD

(Continued from Page 57)

000 feet and the other with a daily flow of 4,000,000 feet.

Trouble over these gas wells threatened when the Lima Oil Corp., owner of the larger gas well, started suit against the Dixie Oil Co., a subsidiary of the Standard Oil Co. of Indiana, to serve an injunction which would prohibit it from drilling its No. 1 Reeths gas well into the oil sands below.

The Dixie company went ahead with drilling operations and filed an answer to the bill of complaint of the Lima corporation which resulted in the withdrawal of the suit by Frank L. Maire, president of the latter company. As further drilling in the Dixie's No. 1 Reeths well increased the oil flow but little, it has been capped and will be preserved as a gas well.

The Lima corporation now has cased off its gas and is preparing to drill deeper on the Margaret Figge 5,000,000-foot gasser in an attempt to get what oil there may be beneath the gas.

Two new wells have been spudded in, and rigs are being built on five other new locations announced during the week. An eighth new location also is to be made within a few days for one of the subsidiaries of the Muskegon Oil Corp.

The Dixie Oil Co's No. 1-B Figge, NW NE Section 8, has been spudded in and is drilling at about 500 feet. The Muskegon Oil Corp.'s No. 1 A. Heinz, NE NE Section 8, also has been spudded in and is now drilling after the original location had been changed from the north to the south end of the 20 acres.

Five new locations have been made and rigs are being erected upon them in the SW NE Section 8. All of them are on small tracts of celery-growing land located on the river flats just below the base of the hill upon which the discovery well was brought in.

They are: Joliet-Morris Co.'s No. 1 G. Kooi; Porter Syndicate's No. 1 Workman; Lake Shore Petroleum Co.'s No. 1 DeVries; Citizens Petroleum Co.'s No. 1 A. Heinz, and W. Bradley's No. 1 Layman.

A new location also is being made for the Muskegon Development Co., the fourth company associated with the Muskegon Oil Corp. Each of the other three, the Joliet-Morris Development Co., Lake Shore Petroleum and the Citizens Petroleum companies have been given new locations in the flats by the controlling corporation.

Leasing continues in many parts of Muskegon County but more especially in Moorland, Egelston, Ravenna, Fruitport and Sullivan Townships, which for some reason are considered to be among the best bets in the country not only by the Muskegon Oil Corp. but by other independent operators.

Leasing also continues throughout the State of Michigan as a result of the success at Muskegon until it is now estimated that 3,000,000 acres are under lease. At the present time little drilling has been done in any but the Saginaw and Muskegon Fields but wildcatters are becoming more and more venturesome in their attempts to make Michigan a great oil state.

OKLAHOMA FIELDS

(Continued from Page 50)

at 524 feet. J. A. Swindler's No. 1, Lot 10, Block 13, Section 6-14-19, is a dry hole at 507 feet. Walton Oil Co.'s No. 2 Kell, NE cor. SE SW, Section 6-14-19, made a 15-bbl. well in sand 524-49 feet. No. 3 Kell, SE cor. NE, SE SW, Section 6-14-19, is dry and abandoned at 568 feet. No. 1 Cumpton, NW cor. NE, Section 7-14-19, has been abandoned at 652 feet. A. A. Rollestone's No. 1 Hixon, C E half NE, Section 1-13-19, is dry and abandoned at 2,212 feet.

Okmulgee County

E. W. Dodge and others moved the machine out for No. 1 Bright, CEL NW SE, Section 29-15-12. W. F. Rapp and others' No. 1 Cornelius, SE cor. NE, Section 35-15-12, is spudding. Sheldon Oil Co. has the rig on the ground for No. 1 Shepherd, SW cor. NW, Section 20-13-12. J. Aggas' No. 7 G. Foster, SE cor. SW SW, Section 6-13-16, is rigging up. Marion Oil Co. is rigging up a machine for No. 1 Tarvin, CSL NW SE, Section 16-13-15.

C. E. Love and others' No. 2 Brown, NE cor. SE NE SE, Section 15-15-12, made 2,000,000 feet of gas from Tanehs sand 1,840-49 feet and Dutcher sand 2,112-20 feet. Jolly-Ogg Oil Co.'s No. 1 Crawford, SW cor. NW SW, Section 12-13-11, is dry and abandoned at 3,535 feet.

Okfuskee County

E. L. Robinson's No. 2 Berryhill, NE cor. SW, Section 35-11-9, is drilling at 1,000 feet. Mid-Continent Petroleum Corp.'s No. 1 Dindy, SE cor. NW NE, Section 31-11-11, is a rig on the ground. W. L. Umbrum made location for No. 2 Hill, NE cor. SE NW SE, Section 11-10-11. Josey Oil Co.'s No. 3 Fields, CSL NW NW, Section 33-12-11, is a 50-bbl. well in Wilcox sand 3,785-3,819 feet. Superior Oil Corp.'s No. 1-A Cubbie, C SE SE, Section 33-10-11, has been completed for 12,000,000 feet of gas in sand 2,540-46 feet.

Pontotoc County

Westheimer & Daube's rig is on the ground for No. 2 Wade, C S half E half Section 19-5-8, Allen Pool. American Oil & Refining Co.'s No. 1 Brown, SW cor. SE, Section 27-5-6, has been completed for 6,000,000 feet of gas in sand 1,869-1,924 feet. Snowden & McSweeney's No. 1 Gilmore, SE cor. NE SW, Section 15-5-8, is dry and abandoned at 3,265 feet. Homaokla Oil Co.'s No. 3 Berry, SE cor. NE, Section 19-5-8, has been shut in for 20,000,000 feet of gas from sand 2,369-2,449 feet.

Pottawatomie County

Magnolia Petroleum Co.'s No. 1 Mull, NE cor. SE, Section 15-7-4, Pearson Pool, was deepened from 3,650 feet to 3,752 feet and is flowing 133 bbls. from Hunton lime.

Seminole County

Indian Territory Illuminating Oil Co. is building the rig for No. 3 Hull, SE cor. NW SE, Section 26-8-6, Little River Pool. Gypsy Oil Co. is building the rig for No. 2 Peter, NE cor. SE NW, Section 18-5-8, Allen Pool. Louisiana Oil Refining Corp. has the rig on the ground for No. 2-A Reed, SW cor. NW NE, Section 18-5-8. W. R. Ramsey has the rig up for No. 4 Culley, NW cor. SW NE, Section 18-5-8.

Sinclair Oil & Gas Co.'s No. 3 Sango, NE cor. SE NE, Section 2-9-5, Searight Pool, made 1,210 bbls. from Wilcox sand 4,429-46 feet. W. B. Pine's No. 1 Hoyecha, SE cor. SW SE, Section 26-8-6, Little River Pool, swabbed 1,090 bbls. from Wilcox sand 4,104-15 feet. Indian Territory Illuminating Oil Co.'s No. 4 House "B", SE cor. NE SE, Sec-

tion 2-7-6, made 1,221 bbls. from Wilcox sand 4,244-54 feet. T. B. Slick's No. 1 Goebelt, NW cor. NE SE, Section 12-6-6, is dry and abandoned at 4,122 feet. Mid-Continent Petroleum Corp.'s No. 8 Fleet, NE cor. SW SE, Section 7-5-8, Allen Pool, has been shut in for 30,000,000 feet of gas in sand 2,394-2,442 feet. W. R. Ramsey's No. 2 Culley, NE cor. SW NE, Section 18-5-8, flowed 787 bbls. from sand 2,543-2,628 feet.

Sequoyah County

Citizens Gas Co.'s No. 1 Humphrey, CNL SW NE, Section 33-12-27, is making 1,500,000 feet of gas from sand 1,215-25 feet.

Wagoner County

Keener Oil & Gas Co.'s No. 1 Jameson, C NW NW, Section 8-18-18, is dry and abandoned at 762 feet.

Greater Seminole Production

The production of the Greater Seminole Field by companies and leases on Thursday, April 12, 1928, is given below:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2- 7-6	3	2.820
Amerada-Wilcox:			
Fore	35- 8-6	2	790
Barnsdall:			
Hotulke	22- 7-6	1	38
Blackwell:			
Nitey	35- 8-6	6	2.007
Carter:			
Fish	36- 8-6	6	1.565
Jackson	11- 7-6	1	750
Continental:			
Cosar	36- 8-6	3	2.305
Gypsy:			
Brown	33- 8-6	1	50
Campbell	36- 8-6	2	257
Mungee	1- 7-6	1	37
Pottie	35- 8-6	3	110
Independent:			
Harris	23- 7-6	1	2.643
Davis	2- 7-6	3	3.320
I. T. I. O.:			
Campbell	1- 7-6	1	100
Dungan	35- 8-6	3	2.426
M. A. House	1- 7-6	1	211
W. E. House	1- 7-6	1	65
W. E. House "B"	2- 7-6	4	2.593
Hull	26- 8-6	1	76
Jackson	1- 7-6	3	2.033
McCulla	1- 7-6	3	868
Nitey	2- 7-6	7	1.363
Phoebe "A"	36- 8-6	3	801
Phoebe "B"	36- 8-6	4	316
Reed	1- 7-6	1	54
Soketheche	1- 7-6	4	835
Magnolia:			
Cruse	2- 7-6	1	495
Dixon	31- 8-7	1	18
Pottie	35- 8-6	4	781
Mid-Continent:			
Smith	5- 7-7	1	25
Wadsworth	36- 8-6	7	1.050
W. B. Pine:			
Hoyeche	26- 8-6	1	750
Pine-Phillips:			
Pottie	35- 8-6	2	792
Prairie:			
Chilcoat	25- 8-6	1	880
Dungan	35- 8-6	2	80
House	2- 7-6	4	1.690
Roxana:			
Smith	1- 7-6	1	8
Shaffer:			
Narcome	36- 8-6	1	105
Sinclair:			
Cosar	36- 8-6	2	1.415
Snowden-McSweeney:			
Tiger	13- 7-6	1	2.735
Superior:			
Soketheche	1- 7-6	1	16
Texas:			
Coker	1- 7-6	3	610
Tidal:			
House	1- 7-6	3	895
Johnson	1- 7-6	1	55
Total		108	40.833

Maud Pool

Barnsdall:			
Fife	14- 8-5	1	0
Indian Terr. Ill.:			
State	16- 8-5	1	0
Total		2	0

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	8	1.960
Atlantic:			
Baker	10- 8-6	4	225
Fleet	23- 8-6	3	365
Grayson	13- 8-6	4	655
A. Jones	16- 8-6	3	84
C. Jones	9- 8-6	2	150
Barnsdall:			
McNac	28- 8-6	1	26
Murray	11- 8-6	4	734
Carter Oil:			
Bowlegs	15- 8-6	4	1.410
Burden	23- 8-6	3	250
Harjoche	14- 8-6	6	610
Hilly	23- 8-6	3	900
Jones	11- 8-6	4	1.270
McGelsey	21- 8-6	1	30
S. Mecco	9- 8-6	1	0
Melissa	9- 8-6	1	140
Walker	15- 8-6	4	670
Wise	23- 8-6	12	3.080
Empire:			
Lacy	14- 8-6	6	482
Wise	23- 8-6	2	348
Gypsy:			
Bowlegs	22- 8-6	1	165
Bradley	9- 8-6	1	2
Cumsey	10- 8-6	4	1.422
Doser	7- 8-6	1	100
Grayson	13- 8-6	4	980
Harjoche	10- 8-6	2	2.885
Jones	11- 8-6	1	285
Walker	15- 8-6	8	1.832
Wise	23- 8-6	3	212
I. T. I. O.:			
Barnett	34- 8-6	2	355
Barnett "B"	33- 8-6	1	332
Billington	22- 8-6	5	775
Bowlegs	22- 8-6	10	1.835
Davis	13- 8-6	4	1.211
Fay	13- 8-6	9	2.093
Goforth	15- 8-6	12	1.603
Livingston	15- 8-6	11	3.389
Lizzie	13- 8-6	2	414
Walker	15- 8-6	8	936
Wilmott	15- 8-6	4	506
Work	24- 8-6	1	129
Youngblood	24- 8-6	2	22
Magnolia:			
Davis	13- 8-6	3	519
M. Davis	13- 8-6	1	286
Hammond	10- 8-6	3	696
Rhodes	12- 8-6	3	4.354
Van Buskirk	9- 8-6	1	339
McCulloch:			
Bowlegs	22- 8-6	2	422
Mid-Continent:			
Baker	10- 8-6	4	1.332
Bowlegs	22- 8-6	1	50
Smith	12- 8-6	6	575
Minnehoma:			
Bowlegs	15- 8-6	4	378
Prairie:			
Gahagan	23- 8-6	4	495
Harber	10- 8-6	8	3.095
Jones	11- 8-6	3	160
Templeton	12- 8-6	6	3.015
Whitney	23- 8-6	4	415
Pure Oil:			
Reed	14- 8-6	15	2.563
Strother "D" 11 &	14- 8-6	4	442
Strother "F"	10- 8-6	4	1.870
Roxana:			
Taylor	16- 8-6	5	562
Shaffer:			
Lacy	14- 8-6	3	355
Sinclair:			
Bowlegs	32- 8-6	1	55
Cumsey	10- 8-6	4	3.949
Ellen	11- 8-6	7	1.325
Harjo	14- 8-6	3	660
Jones	9- 8-6	7	3.345
Taylor	10- 8-6	4	2.484
W. Taylor	10- 8-6	1	991
Walker	22- 8-6	4	1.035
Texas:			
Reed	14- 8-6	11	2.600
Tidal:			
Grayson	13- 8-6	4	800
Harjoche	10- 8-6	6	1.755
Twin States:			
Jones	11- 8-6	3	90
Total		311	75.784

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	1.180
Cowden	4- 9-5	8	1.552
Rogers	3- 9-5	2	960
Atlantic & Sinclair:			
Foreman	18- 9-5	1	185
Barnsdall:			
Brown	10- 9-5	4	2.046
F. Bruner	2- 9-5	2	822
N. Bruner	10- 9-5	4	1.820
Cudjo	14- 9-5	1	27
D. Davis	11- 9-5	3	537
J. Davis	11- 9-5	4	756
M. Javis	11- 9-5	3	107
Gibson	9- 9-5	8	3.099
Hern	15- 9-5	1	4
Ingram	1- 9-5	8	2.973
S. Pack	10- 9-5	4	246
Peter	10- 9-5	4	213
Sango	1- 9-5	3	6.364
Sebolka	15- 9-5	1	576
H. Sullivan	11- 9-5	1	0
Sull-Harjo	10- 9-5	2	58
Wasutke	12- 9-5	4	1.993
Carter:			
Davis	13- 9-5	2	560
Payne	12- 9-5	3	40
Sango	1- 9-5	4	2.030
Continental:			
Kays	2- 9-5	2	115
Spencer	12- 9-5	4	1.310
Crosbie:			
Bryant	9- 9-5	2	0
Empire & Routt:			
Barker	12- 9-5	1	1.000
Empire:			
Edmondson	3- 9-5	3	1.133
Gypsy:			
Bora	16- 9-5	1	0
Bruner	10- 9-5	4	2.995
B. Carter	11- 9-5	8	3.360
Earl	16- 9-5	1	17
Hunick	5- 9-5	1	2.340
Noble	12- 9-5	4	3.545
Peter	10- 9-5	3	190
Sango	1- 9-5	5	4.145
State	16- 9-5	4	1.117
Independent:			
Bruner	10- 9-5	4	385
Sullivan	10- 9-5	3	96
Knapp	8- 9-5	4	2.175
Independent-Margay:			
Gains	11- 9-5	4	1.160
Interocean:			
Payne	12- 9-5	1	0
Magnolia:			
Bryant	9- 9-5	6	1.385
Cowden	4- 9-5	4	80
Dixon	12- 9-5	1	0
Edmondson	3- 9-5	3	30
Holmsley	11- 9-5	8	2.231
Hyde	12- 9-5	1	1.244
Ingram	10- 9-5	1	30
Lena	10- 9-5	3	80
Seay	12- 9-5	9	3.729
Simpson	10- 9-5	3	287
Sparks	11- 9-5	7	974
Sullivan	12- 9-5	3	58
Mid-Continent:			
McCumber	9- 9-5	7	375
Mid-Kansas:			
Anderson	14- 9-5	3	100
Phillips:			
Dunaway	14- 9-5	1	0
Gram	9- 9-5	4	179
Prairie:			
Baker	24- 9-5	1	50
Davis	13- 9-5	5	3.790
C. Graham	3- 9-5	2	20
O. Graham	10- 9-5	4	1.280
Stidham	11- 9-5	12	4.570
Roxana:			
Bayless	17- 9-5	1	30
Spencer	12- 9-5	2	1.385
Shaffer:			
Clark	1- 9-5	5	914
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	13- 9-5	2	70
Skelly:			
Sango	2- 9-5	3	4.885
Spencer	12- 9-5	1	657
Texas:			
Anderson	2- 9-5	7	1.045
Brown	10- 9-5	8	2.130
Rogers	3- 9-5	4	3.780
Wilmott	10- 9-5	7	1.425
Tidal:			
Watkins	9- 9-5	8	3.215
Twin States:			
Barker	12- 9-5	4	100
Hern	2- 9-5	4	1.945
Total		285	95.419

Seminole Pool

Amerada:			
Fixico	23- 9-6	4	950
Killingsworth	23- 9-6	4	386
Rentie	23- 9-6	3	754
Atlantic:			
N. Cudjo	35- 9-6	3	509
Barnsdall:			
Carter	24- 9-6	3	913
Henry	14- 9-6	2	526
Jones	34- 9-6	4	735
Carter Oil:			
B. Carter	24- 9-6	2	210
F. Carter	23- 9-6	3	70
J. Carter	24- 9-6	3	5
Creamer	34- 9-6	2	15
R. Cudjo	35- 9-6	4	220
W. Cudjo	34- 9-6	2	30
Gilliland	27- 9-6	1	355
Grisso	23- 9-6	5	600
M. Grisso	15- 9-6	1	165
G. F. Killings	14- 9-6	4	470
M. E. Killings	23- 9-6	12	6.295
Knapp	13- 9-6	3	47
Lukes	27- 9-6	7	1.290
Pounder	34- 9-6	2	32
Simpson	35- 9-6	3	42
Strothers	34- 9-6	4	390
Vierson	23- 9-6	3	360
Empire:			
Gross	25- 9-6	3	75
Wilson	34- 9-6	2	264
Gypsy:			
Butler	35- 9-6	4	1.317
Carter	24- 9-6	3	327
Cudjo	34- 9-6	5	514
Fixico	26- 9-6	7	270
Hario	25- 9-6	3	1.010
Wolfe	26- 9-6	6	230
Independent:			
D. Fixico	23- 9-6	3	390
Harjo	25- 9-6	3	225
Butler	35- 9-6	3	780
T. Fixico	26- 9-6	8	796
Jones	26- 9-6	4	510
I. T. I. O.:			
Allen	25- 9-6	2	328
Bowlegs	26- 9-6	12	2.894
Goodin	23- 9-6	4	380
Harjo	23- 9-6	3	115
James	24- 9-6	2	279
Reed	24- 9-6	2	12
Kingwood:			
Johnson	22- 9-6	3	1.296
Magnolia:			
Boren	2- 8-6	1	30
Franks	25- 9-6	4	708
Mid-Continent:			
Rentie	14- 9-6	9	760
Tayeche	24- 9-6	7	290
Mid-Kansas:			
Johnson	25- 9-6	2	20
Phillips:			
Strothers	27- 9-6	2	150
Prairie:			
Gross	25- 9-6	5	120
Mason	36- 9-6	1	80
Spencer	13- 9-6	1	10
Strothers	27- 9-6	8	1.810
Pure Oil:			
Strothers	26- 9-6	17	5.979
B. Strothers	36- 9-6	5	1.719
C. Strothers	34- 9-6	1	199
Roxana:			
Harber	22- 9-6	2	246
Lasley	22- 9-6	2	30
Sinclair:			
Carter	13- 9-6	2	25
Cudjo "A"	35- 9-6	6	960
Cudjo "B"	35- 9-6	4	1.270
Dicey	22- 9-6	2	1.270
Fixico	23- 9-6	4	1.050
Slick:			
Cudjo	35- 9-6	3	750
Franks	35- 9-6	7	1.678
Giblet	35- 9-6	3	1.835
Tiger	1- 8-6	1	66
Superior:			
Cudjo	35- 9-6	4	661
Texas:			
Mayhue	14- 9-6	1	300
Strothers	2- 9-6	1	130
Tidal:			
Carter	24- 9-6	4	713
Fixico	26- 9-6	6	1.076
Hario	25- 9-6	3	735
T. Hario	23- 9-6	6	150
Mahardy	24- 9-6	2	27
Turman:			
Cudjo	35- 9-6	4	1.250
Grisso	35- 9-6	1	325
Jones	34- 9-6	4	1.113
Total		309	54.917

Searight Pool

Amerada:			
Johnson	4- 9-6	1	70
Strothers	3- 9-6	2	1.330
Carter:			
Davis	4- 9-6	6	700
Frazier	3- 9-6	6	2.940
Johnson	3- 9-6	1	3
Kiker	2- 9-6	1	25
Mandler	3- 9-6	2	15
Scott	26-10-6	1	20
Gypsy:			
Cudjo	4- 9-6	3	767
Mid-Continent:			
Grayson	34-10-6	6	65
Davis	33-10-6	4	1.615
Pine:			
Lula	4- 9-6	1	30
Prairie:			
Cannon	33-10-6	1	10
J. Carter	10- 9-6	1	15
Houch	33-10-6	1	3
Kincaid	33-10-6	5	70
Varnum	5- 9-6	1	0
Wimer	22-10-6	1	20
Pure:			
Aldridge	3- 9-6	6	3.047
Roxana:			
Strothers	3- 9-6	4	1.140
Sinclair:			
Polly	3- 9-6	4	1.825
Superior:			
Varnum	4- 9-6	1	62
Texas:			
Fleet	4- 9-6	1	40
Twin States:			
Varnum	4- 9-6	2	387
Wilcox:			
Chupco	4- 9-6	8	2.783
Total		70	16.982

Totals

Field—	Wells	Prod.
Little River	108	40.833
Maud	2	0
Bowlegs	311	75.784
Earlsboro	285	95,419
Seminole	309	54.917
Searight	70	16.982
Total	1,084	283.935

ROCKY MOUNTAIN AREA

(Continued from Page 62)

1,150 feet. Plans provide for setting the 10-inch at around 1,600 feet where a sand is expected. The Navajo Petroleum Co., which was recently organized by W. H. H. Cranmer and associates to drill a test well on the Cisco Dome in Grand County, has made a location in Section 2-20-21. Rig will be moved from the Embar Oil Co.'s No. 1 Big Six, which is being abandoned.

Colorado

A new Colorado test that will be closely watched is being started by the Etmyre Syndicate in its No. 1, NE SE SW Section 7-2s-43, on the Blackwolf Structure near the historic Beecher Island in Yuma County, 8 miles west of the Kansas line. The well has commenced spudding in a 24-inch hole with cable tools and is equipped for a deep test. The surface formation is the upper Pierre shale, and the derrick floor is located 3,639 feet above sea level. The structure comprises about 5,000 acres and has a 70-foot closure, according to Mentor Etmyre, who was in charge of the geological work which extended over a period of seven months. If commercial production is not encountered in the sands of the Dakota series, it is planned to take the hole down to the Pennsylvanian. The location is 4 miles northeast of a test drilled several years ago by the Continental Oil Co. in the NW cor. Section 28-2s-43. This well was abandoned at 2,885 feet, having cut important water sands at 2,450-75, 2,575-85, 2,775-95 and 2,875-85 feet. These are supposed to have been the Dakota series, the test stopping in the top of the Morrison. In between these wells the Midfields Oil Co. drilled three wells in Section 14 and 17, each of which had gas estimated at 2,000,000 feet a day. None of these wells went below the Dakota.

The only Pennsylvanian test drilled in that general region was put down in 1926 by the Standard Oil Co. of California in Section 19-16s-48, in Cheyenne County, which found the Dakota at 1,190 feet, and was abandoned at 5,060 feet. The top of the Pennsylvanian was found 3,800 feet below the Dakota. This well was drilled 90 miles to the southwest of the new test. The new operation is about midway between the Russell County, Kansas, development and the Wellington-Fort Collins district in Larimer County, and with the one excention named, there has never been any Pennsylvanian test drilled in the intervening territory in Colorado.

Jackson County

The Continental Oil Co.'s No. 1 Hoye, SW SE Section 34-9n-78, on the South McCallum Dome in Jackson County, which last week was reported topping the Muddy sand at 4,875 feet and blowing in as a gasser only to be bridged by the tools and muck before any estimate could be made as to the quantity of gas or whether it was accompanied by oil, has succeeded in clearing the hole. It has not yet made any additional depth, but is standing at 4,875 feet. The quantity of gas has shown a substantial increase and some oil has commenced showing. The gas is non-inflammable and composed largely of carbon-dioxide the same as was found in the discovery well on the north dome 6 miles to the northwest. Reports have been published to the effect that the gas in the new well was not carbon-dioxide and that the well was flowing at the rate of 3,000 bbls. a day. These are not consistent with the facts as received by the company through official channels, and while the situation may change at any time, exaggerated reports will do no good until events justify them. The company plans

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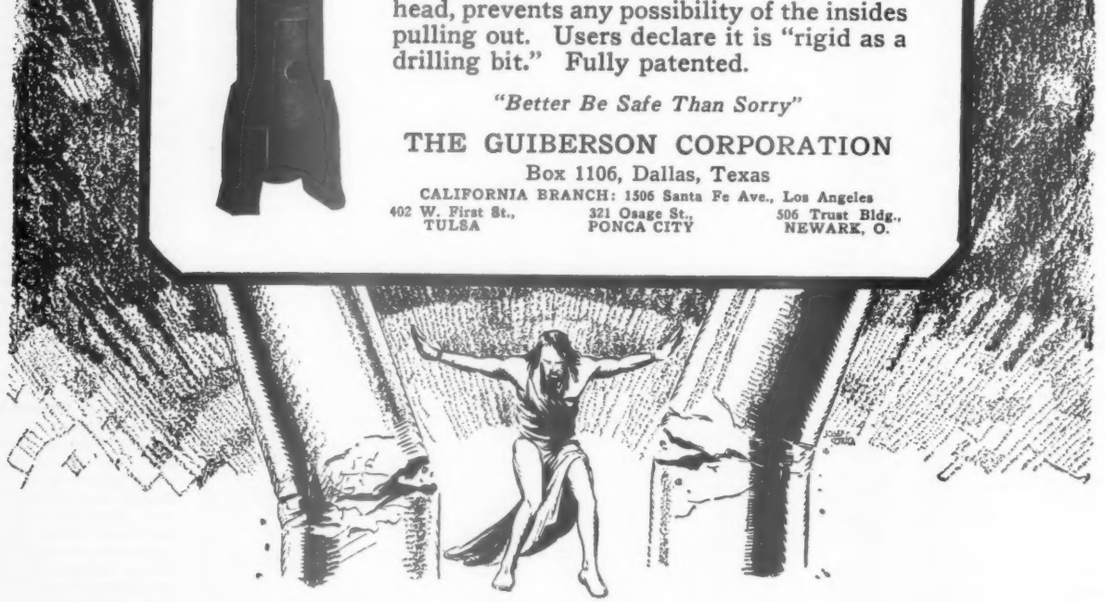

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to continue drilling down to make a test of the other Dakota sands which have not been drilled in either of the two wells on the north dome. It is not too much to say, however, that this operation is very promising and that the next few days' developments may be very interesting. The Continental's No. 1 Peterson, SW SW, Section 1-9n-79, on the north dome, which blew in at 5,115 feet making 50,000,000 feet of gas and oil of unestimated quantity, is still shut down, the entire derrick being imbedded in the peculiar frozen gas and oil. The Continental's No. 1 Pollock, SE SE, Section 2-9-79, is still held up at 4,890 feet by a fishing job.

Moffat County

In Moffat County operations are confined principally to the Iles Dome at present, no new wells being started. The Midwest Refining Co.'s No. 4-M-Shaw, NW NE, Section 27-4n-92, Iles Dome, which made 1,010 bbls. initial from the Morrison sand at a total depth of 3,276 feet, and which afterwards developed some water trouble, is to be deepened. When the water appeared, the hole was drilled to 3,280 feet and made as high as 2,400 bbls. of oil, accompanied by some water. That was a month ago and since then work has been in progress trying to determine the source of the water. It is believed the water is coming from the Dakota sand and is not bottom water, but this appears not to be definitely determined. The 10-inch was set on top of the Dakota and the 8¼-inch below that horizon. Water flowing between the two strings and used for drilling is said to become muddy whenever the tools are run, and this is considered a strong indication that the Dakota is the source of the water trouble. A late drilling report gives the total depth as 3,267 feet, so it is probable the bottom was plugged back as a part of the operation. The well was not drilled to the Sundance, but may be carred to that horizon at this time.

The Midwest's No. 8-SD-2 Parkinson, NW Section 23-4-92, is bottomed at 2,200 feet and rigging up to run the 12½-inch casing. Same company's No. 7-SD Parkinson, NW NW, Section 23-4-92, is drilling at 2,820 feet in black sandy shale and its No. 33-SD Parkinson, SW SE, Section 22-4-92, is running the 12½-inch at 2,201 feet. The Texas Production Co.'s No. 13 Parkinson, NE SW, Section 22-4-92, is drilling at 2,991 feet and its No. 6 Parkinson, NW NW, Section 23-4-92, is cleaning out at a total depth of 2,865 feet. Same company's No. 17 State, NW SE, Section 15-4-92, joint with the Kinney-Coastal Oil Co. is drilling at 3,285 feet. The Shaffer Oil & Refining Co.'s No. 205 Yarg, NW NW, Section 26-4-92, mudded the 6¼-inch at 3,630 feet and is drilling ahead in a dry hole. The next 100 feet ought to tell what is to be found in the Morrison sand. The Alliance Oil Co.'s No. 1 Milliken, SW cor., Section 14-4-92, is drilling at 2,300 feet.

In Routt County, the Texas Production Co.'s No. 4 Belle Dennis, NE SE, Section 7-6n-86, the deep test to the Dakota and lower horizons, is spudding at 50 feet. Same company's No. 1 Henry Dennis, NE NE, Section 18-6-86, the best shale producer in the pool, which is being deepened from 2,597 feet, encountered more oil at lower depths and is being equipped for pumping at a total depth of 3,010 feet. Same company's No. 3 Adair, SW SW, Section 8-6-86, which was completed in July, 1927, at 2,640 feet with an initial production on the pump of 42 bbls. in 19 hours, is being deepened and is drilling at 2,795 feet. The Great Western Oil Co.'s No. 1 State, SE NW, Section 17-6-86, is drilling at 2,330 feet with fluid in the hole and making considerable gas.

Rio Blanco County

In Rio Blanco County, the Texas Production Co.'s No. 1 Freeman, Section 27-3n-94, on the Wilson Creek Dome, is drilling again after being shut down for fuel. It is bottomed at 5,545 feet. It probably will be several weeks before this test reaches the objective Dakota horizon as the drilling is slow and it is still estimated to be some distance off the sand. It is understood that the Tidewater-Associated Oil Co. is planning another test this summer for the Rangely Dome. Its No. 1 Amazon, Section 24-2n-103, was shut down for the winter at 4,800 feet with two rotary drill stems in the hole and it is not likely further efforts will be made to carry this well any deeper, but that another test will be started. There is some talk of the Tidewater, Midwest and Texas companies making a joint test to the Pennsylvanian, using the rotary equipment on the Amazon well, but no agreement to that effect has been reached as far as is known. The only other active operation on the structure is the Midwest Refining Co.'s No. 2 Rangely, Section 30-2n-102, which is still bottomed at 3,473 feet where it has been delayed for several weeks by casing trouble. The string of 4¾-inch has been rerun and it is expected that drilling will be resumed in a few days.

Florence District

Several completions were reported in the Florence district the past week. Raddatz, Vogel & Travis' No. 17 Rodney, NW NE, Section 28-20-69, was completed at a little below 1,900 feet and is making 135 bbls. W. M. Conley's No. 5 Hassler, Section 21-20-69, found the pay at 1,936 feet, but has not yet been put on the pump. Both of these wells are in the south extension. The Mojada Oil & Drilling Co.'s No. 5 Hassler, SW cor. SE, Section 21-20-69, is drilling at 1,885 feet. The Continental Oil Co.'s No. 1 Andy Smith, SW SW, Section 3-19-70, is drilling at 2,800 feet, and its No. 1 Adamic, NW NW, Section 12-19-70, is drilling at 2,075 feet. Same company's No. 2 Dunn, NW SE, Section 35-18-70, is drilling at 810 feet, and its No. 1 Machetti, SW NW, Section 2-19-70, is drilling at 1,545 feet. Same company's No. 1 Dalfior, SE NE, Section 3-19-70, is drilling at 910 feet, and its No. 3 David Hall, NW SE, Section 35-18-70, is drilling at 685 feet. No. 1 Bromwell, NW SW, Section 3-19-70, is drilling at 370 feet. The Texas Production Co.'s No. 1 Dunlap, NW SE, Section 3-19-70, is rigging up; No. 1 Ott, SW SE, Section 3-19-70, is moving in tools; and No. 1 Castagna, NW NW SE, Section 3-19-70, is drilling at 275 feet. Same company's No. 2 Wilson, SE cor. NW, Section 35-18-70, is shut down at 2,366 feet. It is reported that the Texas Production Co., which recently entered this district, is offering as high as $600 per barrel for producing properties. W. F. McCormick's No. 1 York, NW NW, Section 3-19-70, is drilling below 4,275 feet and showing some oil. The Canon City Oil Co.'s No. 1 D. &R.G., SW SE, Section 35-18-70, is drilling at 1,675 feet, and the Pleasant Oil & Lease Co.'s No. 1 Ketchum, SW NE SE, Section 35-18-70, is showing for a producer at 1,200 feet. The Phantom Petroleum Corp.'s No. 1 Green, NW NE, Section 10-18-70, is drilling at 1,720 feet, and its No. 1, SE NE, Section 34-19-69, is drilling at 1,200 feet.

In Elbert County, J. M. Botts and others' No. 1, Section 1-8s-59, is reported having trouble with a cave at 900 feet. Charles F. Woods' No. 1 Knowles, Section 30-3s-69, near Golden, in Jefferson County, is drilling below 675 feet. The Collins & Fisher's No. 1 Aspaas, Section 10-34-11, Red Mesa Terrace, La Plata County, which is listed as abandoned, found the Dakota water bearing at 2,847-3,012 feet. In Las Animas County, the Phillips Petroleum Co.'s No. 1 Haskins, Section 23-29-56, is waiting on tools at 1,477 feet. The Indian Petroleum Co.'s No. 1 Gilmore, Section 4-45-16, Paradox structure, Montrose County, formerly the Gilmore Oil Co.'s No. 1, is drilling at 5,010 feet. It had a show of oil and gas at 2,335-2,400 feet.

Operations at the Index Shale Oil Co.'s shale oil plant in western Colorado are reported suspended pending an adjustment of the company's affairs. The company has been operating the plant intermittently for several months with a small crew which alternated between mining shale and putting it through the retort. Ont of the longest continuous runs reported was made several months ago lasting 62 hours in which 97 bbls. of oil was recovered from 160 tons of shale. The Government's oil shale plant on the Naval Reserve at Rulison is scheduled to resume operations June 1, an appropriation having been made by Congress to provide the necessary funds. The plant was shut down on July 1, 1927, when available funds were exhausted. Four men have been assigned to the United States Bureau of Mines experimental plant at the University of Colorado at Boulder, which is in charge of J. W. Horne. One of the men assigned is H. M. Thorne. The others have not yet been named. J. M. Davidson will be in charge of the operations at Rulison.

Wyoming

There has been some discussion recently of reports that plans are under way for repressuring the first Wall Creek sand in Salt Creek. It is understood, however, that such an undertaking is one of the developments of the future and is not being given consideration at this time. The quantity of gas available in the field is not sufficient for the application of the gas lift method to the first sand since the supply is being used in repressuring the second Wall Creek, but when the time comes for increasing the recovery from the upper horizon, it is probable that gas will be piped from the Billy Creek gas field north of Salt Creek. The Midwest Refining Co. is now constructing its No. 7 plant on a site just to the north of No. 2. It will be equipped with three motor-driven compressors and will handle about 5,000,000 feet of gas per day. For the past two years the company has been concentrating the waste gas of the entire field at one point where it has been burned, making a big torch that has become one of the landmarks. In the process of condensing out gasoline from casinghead gas a certain quantity of valueless unstable product is found mixed with the valuable gasoline and must be removed by a subsequent weathering process. The disposal of this unstable liquid has puzzled Midwest engineers for a long time. Warming it to atmospheric temperature converted it back into a gas which could not, however, be put into the general fuel system for it was likely to recondense in the distributing lines with disastrous results from fires and explosions, and so it burned in the torch. In conformity with the wishes of the United States Geological Survey, the Midwest decided to erect No. 7 plant to eliminate this apparent waste by pumping the gas back into the sand. Only at intervals after the plant is completed will there be any torch at all and then it will be for the purpose of relieving excess pressure during some emergency at the gas plants.

The company also is expanding its facilities for handling gas other than the construction of the new plant. With many of the old wells maintaining their gas flow in large volume, and additional gas available from the Lakota sand, some of the gas plant units have been overloaded for more than a year. To relieve this condition and to conserve gas from any new wells that may be produced, cylinders have been increased in size at the main plants while booster compressors are being moved from lightly loaded areas to more heavily loaded stations. A few of the gathering lines are being looped with larger lines.

La Barge Field

The Oregon Short Line Railroad is preparing to build a 1,700-foot spur track at Opal to accommodate the loading racks to be built at that point in connection with the new 6-inch oil line from the La Barge Field upon which construction is getting under way. The Midwest is now constructing a telephone line along the right of way. E. C. McCrary is in charge of the work. Two pumping stations will be constructed to put the oil through the line which will be approximately 40 miles long.

Drilling operations in the La Barge district are at a low ebb awaiting the completion of this line. It is reported that the California Petroleum Co. will resume at an early date and that its plans call for five wells. The Wyoming Producers Oil Co.'s No. 1, Section 30-28-113, is reported to have a show of oil at 1,830 feet. The 6¼-inch casing was landed at 1,800 feet. This well is about midway between the producing wells in the La Barge Field and the Dry Piney district. The Superior Oil Co. is reported financing some additional drilling on its 80-acre tract upon which it had two producers. The Wyoming Western Oil Co. has been formed to operate in the southwestern district where it has acquired 30,000 acres scattered throughout the territory. H. W. Dahl is president, and R. C. Horn and E. Floyd Redding, of Denver, are additional directors. The Texas Production Co.'s No. 1 Davis, Section 15-26-113, is being plugged to abandon. This well swabbed 44 bbls. of oil with 200 bbls. of water at 830 feet and then was drilled down to 1,825 feet without finding anything, and was plugged back to 830 feet and tested. The California Co.'s No. 1 Bushell, SW SE, Section 11-29-115, South Piney district, is shut down at 1,195 feet. Same company's No. 1 U. P., NE W, Section 7-17-116, Muddy Creek structure, Uinta County, has commenced spudding and is drilling at 175 feet in a 22-inch hole. The elevation of this well is 7,211 feet.

Salt Creek

One completion was reported in Salt Creek, this being the Wyoming Associated's No. 21-2, SE Section 26-40-79, which was completed in the first Wall Creek at 1,092 feet with an initial production of 11 bbls. This well was started to the Lakota, but will be produced from the upper sand for the present.

The Union Oil Co. of California has a small producer in its No. 1 Taylor, NE cor. NW, Section 22-47-100, on the North Sunshine structure in Park County. It topped the Embar at 3,232 feet and had a good show in the Tensleep topped at 3,486 feet. It was drilled to 3,712 feet and shot. After cleaning out there was 500 feet of 14 gravity black oil in the hole.

The Buck Creek Oil Co.'s No. 1 Hattie Peterson, NW cor., Section 30-37-62, Ant Hills Dome, in Niobrara County, the second well to reach the producing horizon on that structure, is shutting off the oil horizon topped at 3,928 feet at 3,953 feet and will go on down to test the lower sands. The oil rose 1,500 feet in the hole. The well is one-fourth of a mile east of No. 1 Delahoyde, the discovery which made between 150 and 200 bbls. initial.

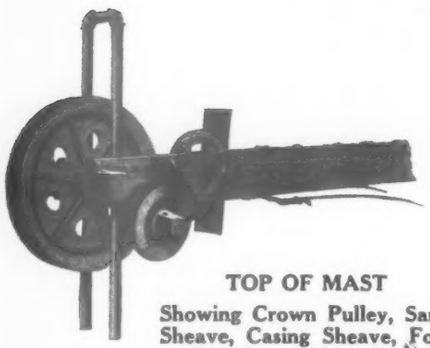
The Spindletop Syndicate's No. 1, SE SE, Section 32-30-81, on the Spindletop Dome, southwest of Casper, in Natrona County, which was reported last week having found oil in the Sundance sand at 1,055-71 feet, appears to be good for about 100 bbls. initial. It was produced from this horizon and two more wells will be drilled by the syndicate at once. After these are completed, the plans provide for drilling a test to the Embar-Tensleep series. The oil is 22 gravity, of mixed base. This adds another small pool to the list of Wyoming fields.

In Fremont County, the Texas Production Co.'s No. 1, Section 1-33-95, Alkali Butte Dome, is drilling at 2,925 feet, and the Producers & Refiners' No. 1, Section 34-34-92, Muskrat Dome, is drilling at 3,040 feet in shale. The 8¼-inch was at 3,007 feet in the latter.

Oregon Basin

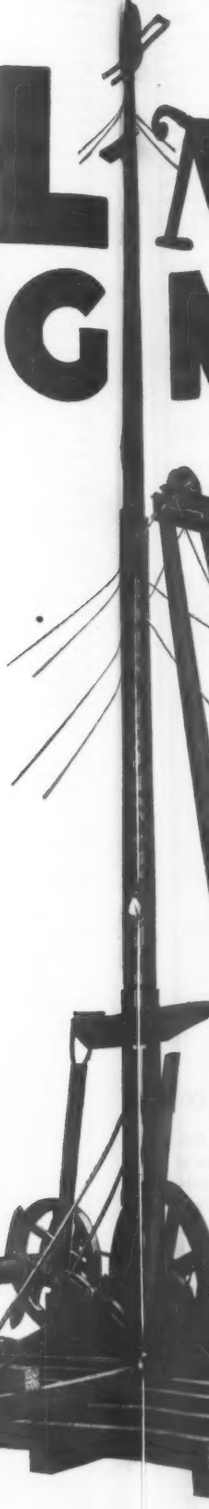
In the Oregon Basin Field in Park County, several of the drilling wells are at interesting depths. The Ohio Oil Co.'s No. 1 Baston, NE cor. NE, Section 6-50-100, the first well on the south dome to reach the Embar, is drilling in the top of the Tensleep at 3,646 feet. It is in this horizon that the big production is expected if it materializes. The hole is flowing with oil from the Embar which was topped at 3,427 feet, whenever the tools or bailer are run. Drilling is necessarily slow and it may still be several days before the hole is far enough into the sand to disclose what it will do. The same company's No. 3 Sonners, NW NE NW, Section 8-51-100, on the north dome, which topped the Embar at 3,351 feet, at which point the casing was set, is drilling in and at 3,358 feet, there was 700 feet of oil in the hole. Drilling has been delayed at this depth, however, by a fishing job for a lost bit. It is not believed

NATIONAL
DRILLING



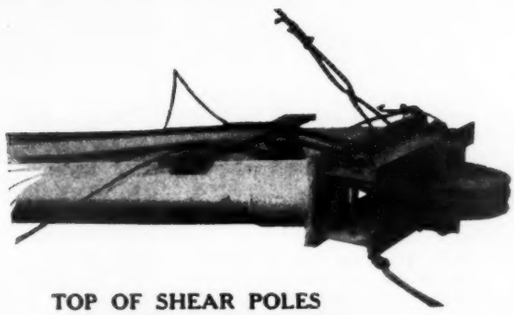
TOP OF MAST
Showing Crown Pulley, Sand Sheave, Casing Sheave, Foot Board and Guy Wires.

Note the convenient assembly of all operating controls at the drillers station

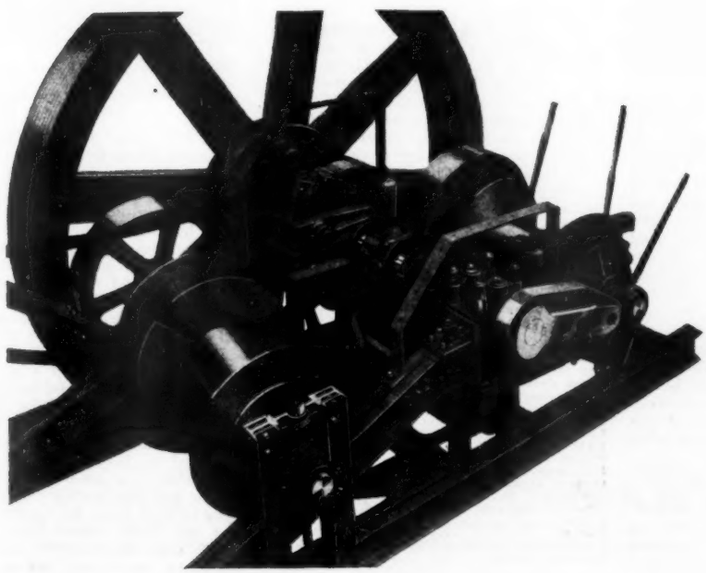


THE NATIONAL SU

No. 3 PORTABLE G MACHINE



TOP OF SHEAR POLES
Showing assembly of Casing Line
Guy Wires and Dead Line



Bull Wheels and Calf Wheel are chain driven from a band friction clutch on crank shaft

UPPLY COMPANIES

that the task of recovering the tools will be difficult. The Ohio's No. 2 Wilson, NW cor. NW, Section 4-50-100, is drilling at 3,280 feet in the red beds. This well is on the south dome. The Enalpac Oil Co.'s No. 2 Pauline, SW cor. SE, Section 5-51-100, is drilling at 1,555 feet and same company's No. 1 Western States, NE SW, Section 30-51-100, is drilling at 715 feet. Charles E. Orchard's No. 1 Rue, SW cor. SW, Section 28-51-100, which is expected to be an early completion, is drilling in the Embar below 3,531 feet, at which depth it topped the sand. The Continental Oil Co.'s No. 1-A State, NW cor. NW, Section 16-51-100, is bottomed at 2,127 feet and underreaming. The Producers & Refiners' No. 1 Frisby, SW cor. NE, Section 32-52-100, is bottomed at 2,185 feet and is waiting for electrician, the drilling motor being down. The Ferdig-Wyoming Oil Co.'s No. 1 Hough, SE cor. SE, Section 19-51-100, in the saddle between the north and south domes, is drilling at 3,765 feet in the Embar which was topped at 3,686 feet. The hole gradually is filling with oil and at last reports stood within 200 feet of the top. The Cody Petroleum Co.'s No. 2 Klindt, NE NE, Section 7-51-100, is drilling at 3,190 feet. The Lenco Petroleum Co.'s No. 1 Rousseau, NE NW, Section 33-51-100, is drilling at 3,070 feet with considerable oil in the hole. This well had 8,000,000 feet of gas in the red beds in a horizon topped at 2,905 feet, which has been bradenheaded off and is being used for fuel. Same company's No. 1 Lyle, SE cor., Section 24-51-101, is drilling at 1,245 feet after changing over to rotary tools. Same company's No. 1 Robertson, NE cor., Section 1-50-101, is drilling at 1,150 feet. Wisconsin Holding Co.'s No. 1 Rausch, NW cor., Section 9-51-100, is bottomed at 2,160 feet and underreaming. The 3-Holding Association's No. 1 Downing, Section 35-51-100, is drilling at 506 feet.

Other Park County operations include the following: The Ohio Oil Co.'s No. 1 Pulley, Section 27-53-101, Shoshone structure, is drilling at 3,200 feet. Same company's No. 2 Buffalo, Section 3-47-100, Buffalo Basin, is drilling at 525 feet. The Honolulu Oil Co.'s No. 1, Section 29-48-103, Fourbear structure, is drilling at 3,240 feet in the top of the Tensleep with 500 feet of black oil in the hole.

In Big Horn County, the Producers & Refiners' No. 3 Government, Section 24-56-98, Garland structure, is drilling at 1,625 feet in dark gray shale, and the Utah Southern Oil Co.'s No. 3 Government, Section 29-56-97, is bottomed at 2,808 feet in hard red beds. It has finished underreaming the 6⅝-inch casing to 2,797 feet where it has been cemented.

In Sweetwater County, the Ohio Oil Co.'s No. 1 Wilson, Section 24-12-100, for the account of the Custer Petroleum Co., is drilling at 1,810 feet. The boilers are being moved back as a precautionary measure as several good shows of gas have been encountered, the largest being at 1,547 feet.

Montana

The Sunburst Oil & Gas Co. is preparing to test its well on the Flat Coulee structure, 2 miles south of the Canadian line. This well attracted a great deal of attention some months ago by showing for a commercial producer of good grade oil, but caving troubles delayed completion and no test was ever made. It is generally expected that this well will open a new productive area in northern Montana.

In the Kevin Sunburst Field, the L.M.R. Oil Co. appears to have a good well on Section 24-34-2. The well was swabbed for a short time and made 30 bbls., and the fluid is standing 1,100 feet deep in the hole. This is expected to make the best producer in this part of the field. Several small wells on proven acreage were completed within the week in the Kevin Sunburst Field.

An oil line will be laid from the Bannatyne Field in northern Wyoming to the town of Collins, 9 miles distant, on the Great Northern Railroad. The line will cost approximately $50,000, including storage, and will be laid and operated by the Genou Pipe Line Co. This company was recently organized by Speer, Craig and McCutcheon, who own the Genou Oil & Gas Co. well, and M. L. Lane, a Montana stockman.

Shelby Field Contract

The Sunburst Oil & Refining Co. has closed a contract by which the Northern Natural Gas Development Co. has taken over the holdings of the Sunburst Oil & Refining in the Shelby Field, for the purpose of forming a reserve for a gas supply for Great Falls. This deal gives the gas company some 25,000 acres of leases lying in the southern part of the Sunburst area and around Shelby.

Another prominent company has entered the Pondera Field, Texas Pacific Coal & Oil Co. having secured the 400-acre leasehold of the George Hirschfield interest. The company is preparing to move in a rotary outfit at once to start the first well. This well will be drilled with a core barrel outfit nearly all the way down in order to secure a graphic log of the strata of the new field, and the rotary will be operated by electric power derived from the high tension line that passes near the field.

The Carter Oil Co. has filed its statement of operations in Montana for 1927, as required under the Montana petroleum laws. This company states that it has $43,401 invested in the Montana fields and during the past year the company did a gross business in the State of $24,355. Expenditures amounted to $119,379.

The Cabin Creek gas field in Montana will furnish gas for Deadwood, Belle Fourche and other cities of the Black Hills district, South Dakota. The gas will be carried through a 175-mile line to be laid by the Hope Engineering Co. at a cost of approximately $3,000,000 according to reports from Great Falls. The system, including laterals, will probably contain 250 miles of line. Work is to start at once.

The natural gas rate controversy between the Great Falls Gas Co. and the Chamber of Commerce of Great Falls will probably be settled by the state Public Service Commission. The gas company asserts that it cannot and will not lower its schedule, and the Chamber of Commerce will not accept the schedule as it stands. The Chamber of Commerce wishes rates paralleling those of Billings, while the company asserts that the rates are fair and that it is justified in a higher rate on account of the greater expense in bringing in the gas.

ROCKY MOUNTAIN PRODUCTION
Runs From the Field, Week Ending April 14

Wyoming	
Salt Creek	36,150
Big Muddy	2,650
Grass Creek	2,590
Elk Basin	1,020
Greybull	20
Rock River	2,520
Lance Creek	720
LaBarge	850
Poison Spider	290
Hamilton	1,220
Oregon Basin	260
Osage	390
Lander	670
Ferris	80
Byron	40
Lost Soldier	5,510
Simpson Ridge	40
Total Wyoming	55,120
Montana	
Cat Creek	1,800
Lake Basin	160
Kevin-Sunburst	10,000
Total Montana	11,960
Colorado	
Florence	1,194
Moffat	1,535
Fort Collins	2,826
Iles Dome	756
Rangely	100
Tow Creek	348
Boulder	25
Total Colorado	6,784
New Mexico	
Rattlesnake	242
Hogback	500
Cap Rock	185
Table Mesa	
Artesia	1,147
Total New Mexico	2,074
Total Rocky Mountain	75,938

NOTABLES OF STATE TO ATTEND OIL FIRM'S PLANE CHRISTENING

CHICKASHA, Okla., Apr. 17.—Gov. Henry S. Johnston, with members of his official staff; a representative from the adjutant general's office in Oklahoma City; Frank Douglas, state commander of the American Legion, with other state officers of that organization; George D. Key, Democratic state chairman, and Mrs. Key; representatives from the Oklahoma State Chamber of Commerce, and many other notables, besides several airplanes from Fort Still, in charge of officers of the Air Service, are expected to be here next Thursday afternoon, when the Ryan brougham monoplane, recently purchased by Hall & Briscoe, oil operators, will be christened at the Chickasha municipal flying field.

Joe L. Hart, Jr., pilot, and the monoplane in which he will attempt to beat the world's endurance record. The picture was taken immediately after Hart landed at the Chickasha airport at the finish of his flight from San Diego, Calif., where the ship was delivered to him for its owners, Hall & Briscoe, Chickasha oil operators.

The aviation committee of the Chickasha Chamber of Commerce is in charge of the program, which will include a flight by Joe L. Hart, Jr., young Chickasha business man who was a lieutenant in the United States Air Service in the World War and who the next day, Friday, April 20, will attempt to set a new world endurance record, flying over this city in the Hall & Briscoe ship.

F. C. Hall and Powell Briscoe, who constitute the firm and who produce oil and gas in the Chickasha and Sholem Alechem Fields besides being drilling contractors, say that while the plane is of business value, their purchase of it was prompted by instincts of sportsmanship rather than by commercial considerations.

"We had this endurance flight specifically in mind when we bought the plane," said Mr. Hall. "Our firm co-operates closely with the local Chamber of Commerce in promoting the interests of Chickasha. Joe Hart is a Chickasha boy. Neither he nor we will get a cent out of the projected endurance flight, but in view of the attention that will be centered here when Hart tries to beat the existing endurance records we look upon the $14,000 invested in this airship as money well spent."

The plane is essentially a replica of the Spirit of St. Louis in which Colonel Lindbergh made his transatlantic flight, setting a solo endurance record of 36 hours. Like its prototype, it has a nine-cylinder motor. The engine is of the same kind. A German dual flight made a record of 52 hours, 22 minutes and 31 seconds. This was topped by Eddie Stinson, with George Haldeman as co-pilot, who made a record of 53 hours, 36 minutes and 40 seconds in the air.

Hart will undertake not only to remain in the air longer than Lindbergh did in his lone flight across the ocean, but, without a companion pilot, to beat the dual record made by Stinson and Haldeman.

To beat the Stinson-Haldeman mark, according to the official rules of the Federation Aeronautique Internationale, Hart will have to stay in the air one hour longer. Of interest in this connection is the fact that it was Stinson who taught Hart to fly in preparation for war service.

Since the war, flying—then a serious, sometimes tragic, business—has been a hobby with Hart. While operating a plane adapted for stunts, he has thrilled crowds by his daring performances in the air.

CORROSION COMMITTEE NAMED BY MARLAND CO.

FORT WORTH, Tex., Apr. 14.—Marland Oil Co. has inaugurated a plan to combat corrosion that has the outward appearance of speeding up the solving of many corrosion problems and eliminating dual efforts in many instances.

A corrosion committee has been formed and is comprised of men in various departments of the organization. This committee will have men from the refining, research, pipe line and engineering, production and gasoline departments, serving on it. Those on the committee representing the departments named are as follows and in the order named: Al Hendrixson, C. T. Langford, Paul Miller, W. A. Viette and Roscoe Howard.

All of the corrosion reports made by the company and various organizations are to be studied by the committee and will probably be summarized into one report for each problem.

The new committee is to give its attention first to the more important corrosion problems and will give its attention to other problems as they rank in order of importance. By working on the corrosion problem in this manner it is expected considerable duplication in work will be eliminated, as well as bringing out new ideas in a more rapid manner.

West Texas corrosion problems will probably be among the first to get the consideration of the committee.

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A REMARKABLE RECORD OF A REGULAR ROPE

Another deep test well drilled and satisfactory service performed.

The Texon Oil & Land Co. have drilled the deepest cable tool well with Hazard Lines.

7955 ft. when taken off. 200 deeper than any other cable tool well.

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Salesman
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J. F. WILLOUGHBY
Production Supt.

CARL G. CROMWELL
President and Gen. Mgr.

The Texon Oil & Land Co. used in drilling Well No. 1-B in the Big Lake Field regular 7/8" 6x19 cast steel Hazard drilling line 9000 ft. long and were highly pleased with its service. The service proves it. For your next line use Hazard.

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Tulsa, Okla.

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Los Angeles
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GREAT NORTHERN TOOL AND SUPPLY CO.
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THE PRODUCERS SUPPLY & TOOL CO.
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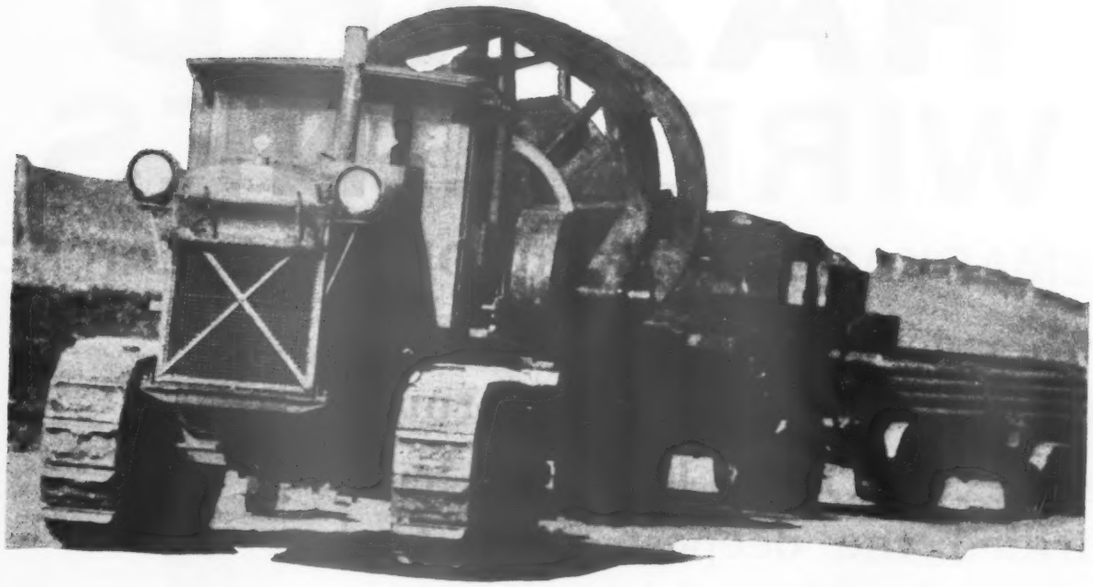

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ATHEY TRUSS WHEEL WAGON
IT BRIDGES THE SOFT SPOTS

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 46)

Wilcox & Andersen's No. 1 Gage, Sec. 8, Blk. 300, T.C. R.R. Sur. ..... Show gas 2,004-2,010 ft. shut down 2,020 ft.

COKE COUNTY

W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H.&T.C. Sur., elev. 2,222 ft. ..... Shut down 3,600 ft.
Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H.& T.C. Sur. ..... Show oil 1,224-34 ft.; shut down 2,375 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft. ..... Shut down 2,739 ft.

CONCHO COUNTY

C. R. Dutton and Hughes Drlg. Co.'s No. 1 W. O. Shultz, Sec. 127, Blk. 72, T.&N.O.R.R. Sur. ..... Shut down 1,500 ft.
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft. ..... Set 10-in. 760 ft.; shut down 940 ft.
Sartain Oil Co.'s No. 1 Evridge ..... Spudded and shut down.

CRANE COUNTY

Gulf Prod. Co.'s No. 4 W. N. Waddell, C of SW SW Sec. 3, Blk. B-25 ..... Building road.
Gulf Prod. Co.'s No. 49 J. T. McElroy, Sec. 201, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur. ..... Top salt 1,115 ft.; top lime 2,695 ft.; setting 6-in. casing 2,700 ft.

CROCKETT COUNTY

Anderson & Williams' No. 1 University, SE cor. NW NW SE Sec. 19, Blk. 47 ..... Drlg. 550 ft.
V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 3, I.&G.N. Sur. ..... Shut down 3,210 ft.
R. B. Coyle's No. 1 H. M. Halff, C Lot 18, Sec. 70, Blk. 1, I.&G.N. Sur. ..... Cleaning out 940 ft.
Dixie Oil Co.'s No. 1 George Thompson, Sec. 72, Blk. 1. ..... Location.
J. S. Cosden, Inc., No. 1 Paul Perner, SW cor. Sec. 36, Blk. 2, I.&G.N. Sur. ..... Drlg. 2,240 ft.
Henshaw and McMan Oil & Gas Co.'s No. 1 W. Owens, C NW Sec. 17, Blk. G.G., G.C.&S.F.R.R. Sur. ..... Top salt 1,140 ft; top lime 2,060 ft.; drlg. 2,480 ft.
Humble O. & R. Co.'s No. 2 P. J. Sorg Est. ..... Total depth 2,690 ft.; top pay 2,591 ft., lime; swab. 400 bbls. 18 hrs.; shut down for storage.
Van McPhail's No. 1 George Thompson, C 10-acre tract No. 31, Sec. 70, Blk. 1 ..... Location.
Van McPhail et al's No. 1 George Thompson, C 10-acre tract No. 32, Sec. 70, Blk. 1 ..... Location.
Grayburg Oil Co.'s (formerly Osage Oil Co.'s) No. 1 Thompson-Collins, Sec. 70, Blk. 1, I.&G.N. Sur. ..... Setting 6-in. casing 965 ft.
Grayburg Oil Co.'s No. 2 Thompson-Collins, Sec. 70, Blk. 1, I.&G.N. Sur. ..... Rig.
W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V ..... Shut down 600 ft.
W. R. Simmons' No. 1 University, 150 ft. N of C S line SE Sec. 1, Blk 14 ..... Shut down 200 ft.
Whonlick's No. 1 H. M. Halff, 150 ft. N of S line and 300 ft. E of Pecos River, Sec. 69, Blk. 1, I.&G.N. Sur. ..... Shut down 245 ft.
World Oil Co.'s No. 1 Schneeman-B, Sec. 50, Blk. BB, G.C.&S.F. Sur. ..... Top salt 1,070 ft.; hole full salt water 2,210-15 ft.; set 6-in. 2,540 ft.; drlg. 2,830 ft.; hole full sulphur water; shut down 2,910 ft
M. B. Wyrick et al's No. 1 H. M. Halff, Sec. 68, Blk. 1, H.&G.N. Sur. ..... Shut down 1,400 ft.
Zoch's No. 1 University, SW cor. Sec. 16, Blk. 14 ..... Location.
Young & Donnelly's No. 1 J. M. Shannon, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,662 ft.; shut down 1,775 ft.
Young & Donnelly's No. 2 J. M. Shannon, Sec. 18, Blk. 10, G.C.&S.F.R.R. Sur. ..... Spudded and shut down
Young & Donnell's No. 1 J. S. Todd, Sec. 26, Blk. WX, G.C.&S.F. Sur. ..... Setting 10-in. casing 505 ft.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Kloh-Rumsey, Sec. 21, Blk. 29, T.&P. Sur., T-1 (NE of No. 1) ..... Drlg. 1,630 ft.
Hickey & Stiver's No. 1 C. O. Finley ..... Setting 8-in. casing 868 ft.
Scott & Dittman's No. 1 Miller, SW cor. NW NE Sec. 1, School Blk. 97 ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down for casing 1,767 ft.

ECTOR COUNTY

Pennsylvania Drlg. Co.'s No. 1 W. E. Connell, C NE Sec. 7, Blk. B-16 ..... Location.
The Texas Company's No. 6 Cosden-Connell, NW cor. NW Sec. 10, Blk. B-16, PSL ..... Rigging up standard tools.

EL PASO COUNTY

Ellsworth & Haunt's No. 1 McKinney & Jones ..... Rig.

FISHER COUNTY

R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T.&P. Sur. ..... Shut down 3,160 ft.
Sinclair Oil & Gas Co.'s No. 1 F. Steele, NW NE NE Sec. 72, Blk. 1, H.&T.C.R.R. Sur. ..... Top lime 1,635 ft.; drlg. 1,720 ft.

FOARD COUNTY

Marland Oil Co.'s No. 1 J. H. Minnick, C NE Sec. 74, Blk. B, H.&T.C. Sur. ..... Drlg. 1,440 ft.

GARZA COUNTY

Marland Oil Co.'s No. 1 B. F. Pippin, C NW Sec. 1,310, W. C. Young Sur. (3,750-ft. test) ..... Top salt 960 ft.; drlg. by pipe 1,650 ft.

GLASSCOCK COUNTY

Texon & Marland's No. 1 Settles. ..... Set 10-in. 1,420 ft.; top lime 2,015 ft.; hole full sulphur water 2,710-50 ft.; 5-in. casing 3,210 ft.; shut down 3,504 ft. to plug back.
Josey & Finchbaugh's No. 1 S. R. Cox, 1,320 ft. W. of NE cor. and located on the N line of Sec. 29, Blk. 33, Twp. 4s, T.R.R.R. Sur. ..... Location.
Meriwether Oil Co.'s No. 1 L. S. McDowell, CNL Sec. 34, Blk. 34, T-2-S, T.P.R.R. Sur. ..... Top salt 995 ft.; rerunning 8-in. casing 1,170 ft.
R. R. Penn's No. 1 Hughes & Johnson ..... Location.
World Oil Co.'s No. 2 L. S. McDowell, SW SE SW Sec. 33, Blk. 34, T-2-S ..... Building rig.

HOWARD COUNTY

F. H. E. Oil Co.'s No. 1 Dora Roberts, SW NE Sec. 136, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,940 ft.
F. H. E. Oil Co.'s No. 3 Dora Roberts-A, 1,170 ft. S and 1,310 ft. W NE cor. Sec. 164, Blk. 29, W.&N.W. Sur. ..... Top pay 1,862-65 ft; total depth 1,869 ft; shot with 80 quarts 1,865-75 ft.; estimated 75 bbls.; cleaning out.
F. H. E. Oil Co.'s No. 4 Dora Roberts-A, 1,170 ft. S and 1,710 ft. S and 1,710 ft. W NE cor. Sec. 156, Blk. 29, W.&N.W. Sur. ..... Shut down 1,380 ft.
Green O. & R. Co.'s No. 1 H. R. Clay, SE cor. Sec. 127, Blk. 29, W.&N.W. Sur. ..... Shut down for casing, 945 ft.
Henshaw et al's No. 1 W. R. Settles, SW SE SW Sec. 135, Blk. 29 ..... Top pay 2,349-60 ft.; bit in hole; shut down 2,519 ft. for orders.
Lockhart et al's No. 2 Dora Roberts, Sec. 157, Blk. 29, W.&N.W. Sur. ..... Material on ground.
Magnolia Pet. Co.'s No. 7 Dora Roberts, SW NE SW Sec. 136, Blk. 29, W.&N.W. Sur. ..... Cleaning out 836 ft.
Marland Oil Co.'s No. 1 Donnelly Clay, Sec. 127, Blk. 29. ..... Location.
Marland Oil Co.'s No. 1 Richardson, C NW Sec. 12, Blk. 32, T.&P. Sur., T-1-S. ..... Top salt 370 ft.; hole full salt water 2,235-2,300 ft; hole full sulphur water 2,790-2,800 ft. and 3,010 ft.; pulling pipe to abandon 3,618 ft.
Mayo, Nixon & Flowers' No. 1 W. J. Flowers. ..... Little salt at 976-97 ft.; top salt 1,114 ft.; shut down 2,100 ft.
Merrick & Lamb's No. 4 H. R. Clay, CSL SE NE Sec. 126, Blk. 29, W.&N.W. Sur. ..... Location.
Miley and Marland Oil Co.'s No. 1 C. D. Read, C NW Sec. 13, Blk. 31, T.&P. Sur., T-1-N. ..... Spudded and shut down 6 ft.
Owen & Sloan's No. 4 Dora Roberts, Sec. 136, Blk. 29. ..... Setting 6-in. casing 1,722 ft.
Pure Oil Co.'s No. 4 Otis Chalk, Sec. 125, Blk. 29, W. &N.W. Sur. ..... Cellar.
Sprague Oil Co.'s No. 1 Dora Roberts. ..... Spudded and shut down.
Sun Oil Co.'s No. 2 W. R. Settles, NW SE SE Sec. 135, Blk. 29 ..... Building rig.
Sweeney et al's No. 3 Chalk, Sec. 124, Blk. 29. ..... Location.
Sweeney et al's No. 4 Chalk, Sec. 124, Blk. 29. ..... Location.
Sweeney et al's No. 6 Chalk, Sec. 124, Blk. 129, W.&N.W. Sur. ..... Rig up and shut down.
Texon O. & L. Co. and Marland Oil Co.'s No. 2 W. R. Settles ..... Top lime 2,030 ft; drlg., 3,494 ft
Texon and Marland's No. 3 W. R. Settles, C NE Sec. 160, Blk. 29, W.&N.W. Sur ..... Drlg. 520 ft.
Texon & Marland's No. 2 W. R. Settles-A. ..... Fishing for bailer 845 ft.
Weekly Oil Corp. et al's No. 1 Dora Roberts, Sec. 156, Blk. 29 ..... Top lime 2,090 ft.; repairing crown block; total depth 3,325 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart and Roseborough, C SE Sec. 5, School Blk. 21. ..... Shut down 260 ft.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, T.&P. Sur., T-9. ..... Rerunning 10-in. casing 1,707 ft
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18. ..... Drlg. 1,375 ft.

IRION COUNTY

F. F. Hill's No. 1 Horney, 150 ft. S and 450 ft. W of NE cor. SW of Sec. 2, Blk. 3, H.&T.C. Sur. ..... Drlg. 1,510 ft.
F. E. Webb et al's No. 1 J. M. Nutt. ..... Drlg. 380 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means. ..... Drlg. 2,676 ft.
Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 350 ft. E of SW cor. Sec. 34, Blk. 58, T.&P. Sur., Twp. 5 ..... Drlg. 4,500 ft.

JONES COUNTY

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands. ..... Hole full water 2,770-80 ft.; shut down 3,145 ft.
Midwest Exploration Co.'s No. 1 Sarah L. Phillips, SW cor. Sec. 16, Blk. 19, T.P.R.R. Sur. ..... Drlg. 2,280 ft.; set 8¼-in. 2,249 ft.
J. N. Sloan and others' No. 1 W. C. Bennett, NW cor. SW SE Sec. 42, Orphan Asylum Land. ..... Spudded and shut down.
W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur., No. 2. ..... Shut down 1,740 ft.
Teas & Wheeler's No. 1 Henry Sayles, C NE 34 acres, Sec. 3, Blk. 20, T.&P.R.R. ..... Rigging tools.

KENT COUNTY ..

Marland and Texon's No. 1 Bilby. ..... Top salt 610 ft; top lime 2,160 ft.; drlg. 3,102 ft.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore. ..... Underreaming 8¼-in. 2,454 ft., hole full water.
Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,500 ft. W of NE cor. Sec. 31, Blk. 4. ..... Drlg. 4,420 ft.

LOVING COUNTY

Delaware Oil Co.'s No. 1 Lockhart & Ramsey. ..... Top salt 780 ft.; drlg. 3,675 ft.
Lockhart Bros.' No. 2 Fee, 330 ft., 3,630 ft. W SE cor. Sec. 85, Blk. 33, H.&T.C. Sur. ..... Top salt 687 ft.; drlg. 1,350 ft.
Lockhart & Co.'s No. 1-A Lepp, Sec. 86, Blk. 33. ..... Total depth 2,260 ft; temp. completed.
Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T.&P. Sur., elev. 2,934. ..... Top salt 955 ft.; total depth 4,805 ft.; waiting on orders.

LYNN COUNTY

Elpo Oil Co.'s No. 1 Nevels, NW cor. Sec. 6, Blk. C-42, School Lands ..... Shut down 2,010 ft. for drill pipe.
Hart Oil Corp.'s No. 1 C. O. Edwards A-1. ..... Rig.

MARTIN COUNTY

Phillips Pet. Co.'s No. 1 C. C. Slaughter, SE cor. Sec. 77, Bauer & Cockrell Sur. ..... Rigging up standard tools.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 ..... 165 ft. 34.6 grav. oil at 411-415 ft., fishing 415 ft.
J. C. Barnett and T. H. Drake's No. 1 Callan City Co. Ranch, Sec. 22. ..... Shut down 505 ft.
May & Clark's No. 1 Collen, Sec. 22, B.S.&F. ..... Shut down 505 ft.
Moody Oil Corp.'s No. 1 G. S. Allison, SE cor. Johann Kuhler Sur. No. 1,473 ..... Drlg. 850 ft.
Renfro et al's No. 1 J. Davis. ..... Shut down 310 ft

MIDLAND COUNTY

Gholson et al's (was Orbit Oil Co.'s) No. 1 Moreland, C SE Sec. 17, Blk. 39, T.&P. Sur., T-1-S. ..... Top salt 1,910 ft.; shut down 3,510 ft.
Shoup et al's No. 1 Roy Parks. ..... Total depth 950 ft.; waiting on casing.

MITCHELL COUNTY

Boehm Drilling Co.'s No. 1 Harry Hyman, C NW SE Sec. 90, Blk. 29, W.&N.W. Sur. ..... Shut down 505 ft.
California Oil Co.'s No. 5 C. M. Adams Lease No. 2, CSL NE NW Sec. 11, Blk. 28, Twp. 1n, T.&P.R.R. Sur. ..... Top lime 1,528 ft.; drlg. 2,490 ft.
Magnolia Oil Co.'s No. 5 Foster, Sec. 17, Blk. 29, T.&P. ..... Top lime 1,738 ft.; drlg. 2,675 ft.
Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T.&P. Sur., T-1-N ..... Total depth 2,503 ft.; shut down

PECOS COUNTY

George Anderson's No. 1 University, C Sec. 11, Blk. 17, ... Drlg. 690 ft.
Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.C.Ry. Sur. ..... Location.
Benedum & Trees' No. 1 B. T. Corder. ..... Shut down 494 ft.
Bob Elmore's No. 2 Holmes, SE cor. Sec. 45, Blk. 1, I.&G.N. Sur. ..... Top salt 435 ft.; shut down 980 ft.
Buell & Hagan's No. 1 Pryor & Wilson, Sec. 15, Blk. 5. ..... Top salt 1,445 ft; shut down 2,580 ft.
Diamond Pet. Co.'s No. 1 Blackstone & Slaughter. ..... Moving in machine.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur. elev. 2,555 ft. ..... Shut down 1,170 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 231, A-6,387 ..... Spudded and shut down.
Douglas Oil Co.'s No. 2 Myrtle Sellman, Sec. 14, Blk. Z, T.C.R.R. Sur. ..... Hole full salt water 795-860 ft., 25 ft. sulphur water 1,614-15 ft
Furman Oil Co.'s No. 1 T. W. McNear, Jr., Sec. 46, Blk. 9 ..... Moving in material.
Everett et al's No. 1 J. Fields. ..... Spudded and shut down.
Kirby Pet. Co.'s No. 1 University, NE cor. Sec. 36, Blk. 24, University Land ..... Drlg. 1,140 ft.
Mid-Kansas O. & G. Co.'s No. 1 Pryor & Wilson, NW cor. Sec. 3, Blk. 5, T.C.R.R. Sur. ..... Top salt 1,455 ft.; drlg. 2,015 ft.
Phillips Pet. Co.'s No. 1 Nutt, SE cor. Sec. 8, Blk. 125. ..... Fishing for tools 230 ft.
B. J. Spikes' No. 1 George Brown. ..... Shut down 700 ft.
Rowan & Tong's No. 1 Scharff & Blackman, Sec. 4, Blk. 9 ..... Drlg. 2,126 ft.
Roxana Pet. Corp. and Kirby Pet. Co.'s No. 1 University, Sec. 33, Blk. 26. ..... Drlg. 308 ft.
Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&St.L. Sur. ..... Shut down 60 ft.
Stidham & Thrasher's No. 1 Belgrade Ranch Co., Sur. 1, Mrs. S. Tompkins A-4,695 ..... Flowing sulphur water; shut down 2,020 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18. ..... Top lime 1,155 ft.; setting 12-in. casing 1,155 ft.
Vacuum Oil Co.'s No. 1 Elsinore Cattle Co., Sec. 60, Blk. D, G.C.&S.F. Sur. ..... Top sulphur water 2,435 ft.; drlg. 2,450 ft.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. ..... Shut down 1,103 ft.
World Oil Co.'s No. 1 Serf, C NE Sec. 10, Blk. 130, T.&St.L. Sur., elev. 2,435 ft. ..... Shut down 2,620 ft.

Yates Pool, Pecos County

Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 6 River Bed. ..... Rig.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 8 River Bed ..... Hole full of fluid, 35 per cent water; shut down 1,095 ft.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 9 River Bed. ..... Location.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 13 River Bed. ..... Location.

Pandem Oil and Gibson Oil Co.'s No. 14 River Bed.....Location.
Pandem Oil and Gibson Oil Co.'s No. 15 River Bed.....Location.
California Co.'s No. 2 Yates, Sec. 34, Blk. 194.....Rig.
California Co.'s No. 15 I. G. Yates, Lease 1, Sec. 34, Blk. 194.....Shut down 1,109 ft.; 50,000,000 ft. gas from 1,085-1,109 ft.; top pay 1,109 ft.; flowing 400 bbls. per hr.
California Oil Co.'s No. 16 I. G. Yates, Lease 1, Sec. 34, Blk. 194.....Shut down 1,150 ft.
California Co.'s No. 2 M. A. Smith, Lease 1, Sec. 37, Blk. 194, G.C.&S.F.....Drlg. 1,638 ft.; flowing by heads.
California Co.'s No. 1 Mrs. M. A. Smith, Lease 2, Sec. 26, Blk. 194, G.C.&S.F. Sur.....Shut down 1,564 ft.
California Co.'s No. 12 Smith, Lease 3.....Shut down 1,313 ft.
Humble O. & R. Co.'s No. 7 M. A. Smith, SW cor. NW Sec. 36, Blk. 194.....Top lime 1,305 ft.; top sulphur water 1,310 ft.; setting 6-in. casing 1,536 ft.
Matador Oil Co.'s No. 1 Smith, NW cor. SE NE Sec. 24, Blk. 194, G.C.&S.F. Sur.....Cellar.
McDonald et al's No. 1 A. A. Parsell, C NW SE Sec. 28, Blk. A, G.C.&S.F.R.R. Sur.....Shut down 100 ft.
McMan and Marland's No. 16 Yates, Sec. 34½, Blk. 194, G.C.&S.F. Sur.....Drlg. 760 ft.
McMan Oil Co.'s No. 1 Mrs. M. A. Smith, SW cor. Sec. 104, Blk. 194.....Setting 8-in. casing 660 ft.
McMann Oil Co.'s No. 2 Mrs. M. A. Smith, Sec. 104, Blk. 194.....Location.
Marland Oil Co.'s No. 11 Yates-A.....Location.
Marland Oil Co.'s No. 12 Yates-A.....Location.
Marland Oil Co.'s No. 13 Yates-A.....Location.
Michaelson & Tabot's No. 1 River Bed.....Top salt 430 ft.; drlg. 2,015 ft.
Mid-Kansas and Trancontinental's No. 17 I. G. Yates-A, Sec. 31, Blk. 194.....Shut down 1,072 ft.
Mid-Kansas and Transcontinental's No. 18 Yates-A, Lease A-8,195.....Rigging up.
Mid-Kansas and Transcontinental's No. 18 Yates-B.....Show oil 1,095 ft.; flowed sulphur water 1,108 ft.; plugged back to 1,087 ft.; 400 ft. water; 300 ft. oil in hole.
Mid-Kansas and Transcontinental's No. 1 I. G. Yates-G, Sec. 34½, Blk. 194.....Drlg. 1,360 ft.; flowing by heads.
Mid-Kansas and Transcontinental's No. 9 Smith-Taylor.....Drlg. 1,195 ft.
Red Bank Oil Co.'s No. 3 Mrs. M. A. Smith, Sec. 24, Blk. 194, G.C.&S.F. Sur.....Spudding.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle Est., Sec. 123, Blk. 3, D.&P. Sur., elev. 2,912 ft.....Salt water 2,610 ft.; total depth 3,003 ft.; shut down for orders.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft. S and E NW cor. Sec. 74, Blk. 2, D.&P. Sur.....Location.

REAGAN COUNTY

California Oil Co.'s No. 4 University, NW cor. Sec. 3, Blk. 7.....Top salt 1,340 ft.; drlg. 2,855 ft.
Hagan & Emch's No. 1 E. W. Loftin, C E half Sec. 1,271, D.&S.E. Sur.....Top salt 1,065 ft.; drlg. 2,781 ft.
Marland Oil Co.'s No. 1 University, SE cor. SW Sec. 26, Blk. 3.....Top salt 1,360 ft.; drlg. 2,760 ft.
Moody Oil Co.'s No. 1 R. A. Walters.....Rig.
Roxana Pet. Corp.'s No. 1 University, NW cor. Sec. 30, Blk. 11, University Lands.....Building rig.
Skelly Oil Co.'s No. 2 University, SE SW SE Sec. 35, Blk. 3.....Drlg. 1,245 ft.
Texon O. & L. Co.'s No. 1-B University, Group 1.....Top pay 6,250 ft.; 2,000 ft. oil, drlg. 3,050 ft.
White et al's No. 1 Shofner & Sterling, NE cor. NW Sec. 10, 2 m. N of Big Lake.....Top salt 1,275 ft.; drlg. 2,310 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft.....Shut down 2,170 ft.; repairing rig.
Grisham-Hunter Corp.'s No. 1 Rathge & Connor, 600 ft. from N line and 5,760 ft. from W line of Sec. 36, Blk. 2, H.&G.N. Sur.....Top salt 1,037 ft.; drlg. 2,510 ft.
David R. Thompson's No. 1 A. A. Eddins.....Shut down 5,467 ft.; splicing line.
Vacuum Oil Co.'s No. 1 Grisham-Hunter.....Drlg. 3,325 ft.

RUNNELS COUNTY

Agnew & Schields' No. 1 R. R. Russell, in Mrs. H. Hollier Sur.....Rigging up cable tools.
Gibson & Johnson's No. 1 Harris Est., Juliana Voske Cabrera Sur.....Building rig.
Jones Oil Syndicate's No. 1 W. Hale.....Shut down 2,210 ft.
McLean et al's No. 1 G. W. Clayton.....Shut down 1,050 ft.
Marland Oil Co.'s and E. L. Smith Oil Co.'s No. 1 A. C. Herring, C Sec. 121, E.T.R.R. Sur. (3,000-ft. test).....Skidding rig.
Marland Oil Co.'s No. 1 R. R. Russell, near CSL J.F.G. Sur.....Shut down 1,615 ft.
Kennedy et al's No. 1 J. E. Tally.....Shut down 2,340 ft.
May et al's No. 1 J. M. Schneider, John Wall Sur.....½ bailer salt water 1,033 ft.; hole full water 1,100-20 ft; shut down 1,675 ft.
Miles Oil Co.'s No. 1 Charles Ray, Sec. 21, T.&N.O. Sur.....Cellar and machine.
Miles Oil Co.'s No. 1 L. S. Lawhon, NE cor. Sec. 68.....Show gas 960-80 ft; shut down 2,450 ft.
Royal Pet. Co.'s No. 1 A. C. Willingham.....Preparing to run 10-in. 1,416 ft.
R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. No. 26.....Shut down 750 ft.
Swensondale Oil Co.'s No. 1 E. A. Werner.....Drlg. 2,950 ft.
Vacuum Oil Co., Lou Ladd et al's No. 1 J. S. Flanagan, NW cor. Subdivision No. 29, Domingo Diaz Sur. No. 532.....Rigging up.
Vacuum Oil Co. et al's No. 1 H. B. Fowler, subdivision No. 23, Domingo Diaz Sur. No. 532.....Setting 12-in. casing 1,355 ft.
Watchorn O. & G. Co.'s No. 1 J. L. King.....Underreaming 3,435 ft.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T.O. Sur.....Shut down 400 ft.

SCURRY COUNTY

J. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur.....Rig.

STERLING COUNTY

Orr et al's (to be taken over by Empire G. & F. Co.) No. 1 Neal Reed, CNL Sec. 15, Blk. 36, W.&N.W. Sur.....Shut down 1,390 ft. (cor.)

STONEWALL COUNTY

Henshaw Oil Corp.'s No. 1 W. P. Moore, Sec. 136, Blk. 1, H.&T.C. Sur.....Fishing 300 ft.

SUTTON COUNTY

J. D. Nantz et al's No. 1 G. Allison, C NE Sec. 29, Blk. B, H.E.&W.T.R.R. Sur.....Shut down 100 ft.
National Potash Co.'s No. 1 J. N. Ross.....Shut down shale 1,329 ft.

TAYLOR COUNTY

A. J. Brown et al's No. 1 Hensley, NE cor. Sec. 5, Blk. 4, S.P.R.R. Sur.....Shut down 2,935 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T.&P. Sur., elev. 1,904 ft.....Shut down 455 ft.
Gilbert Johnson and Day Bros.' No. 1 C. M. Brown, Sec. 1, Blk. 6, T.&P. Sur.....Hole full water 2,170-2,229 ft.; cased off; shut down 2,603 ft., contract depth.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett.....Location.
Champlin Ref. Co.'s No. 1 Corder, C Sec. 110, Blk. 1, C.C.S.D. Sur.....Drlg. 2,310 ft.
Deep Rock Oil Co.'s No. 1 H. C. Nolke, Sec. 4, Blk. A-2, T.C.R.R. Sur.....Drlg. 2,115 ft.
Humble Oil Co.'s No. 1 University, Sec. 15, Blk. 34.....Drlg. 2,390 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur.....Rig.
Milham Exploration Co.'s No. 1 Bassett, Sec. 77, Blk. Y, W. H. Robertson Sur.....Fishing 2,409 ft.
Bryan and Breen's No. 1 Allison & Burke, C NW Sec. 10, Blk. 176, Texas-Mex.R.R. Sur.....Rig.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.R.G.&N.G.R.R. Sur.....Rig.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur.....Shut down 4,003 ft., contract depth.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B.A.L. Sur.....Location.
Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur.....Rig.
Cox et al's No. 1 Llano.....Shut down 780 ft.
Fitzgerald & Tallaferro's No. 1 Bennett.....Shut down 1,955 ft.
Lone Eagle Oil Co.'s No. 1 Sharp, SE W Elzel Sur. No. 167.....Spudded and shut down.
Marland Oil Co.'s No. 1 J. W. Johnson-A.....Underreaming 3,355 ft.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 162, Blk. 11, S.P.R.R. Sur.....Shut down 1,020 ft.
Haubelt et al's No. 1 Johnson.....Shut down 1,205 ft.
World Oil Co.'s No. 1 Mrs. F. T. March.....Location.

UPTON COUNTY

Cowboy Evans and Wilburn's No. 1 University, Sec. 10, Blk. 15, University Lands.....Drlg. 1,675 ft.
Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton C. School Land, League 1, elev. 2,757 ft.....Shut down 975 ft.
Humble O. & R. Co.'s No. 8 R. Richer, in M. S. Denton Sur. No. A-127.....Top salt 570 ft.; drlg. 1,500 ft.
Penn and Atlantic's No. 1 Live Stock Exchange, Sec. 34, Blk. 38.....Set 10-in. casing 1,100 ft.; drlg. 1,150 ft.
The Texas Company and Cordova Union's No. 1 Union Land, Sec. 23, Blk. 35, H.&T.C.....Top pay 2,098 ft.; swabbed 60 bbls. in 36 hrs. at 2,271 ft., 2 per cent water; 2,200 ft. sulphur water 2,390-2,405 ft.; total depth 3,201 ft.; plugged back to 2,350 ft. and lost bailer; fishing.
Wise & Jackson's No. 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E, elev. 2,593 ft.....Top pay 3,419 ft.; total depth 3,517 ft., gray lime; shut down.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore Est., Sec. 133, J. Mitchell Sur., elev. 953 ft.....Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G.H.&S.A. Sur.....Shut down 2,940 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 133, Del Rio Town Sur., elev. 941 ft.....Shut down 3,320 ft.
Magnolia Pet. Co.'s No. 1 Whitehead, Sec. 81, D.G.C. &S.F. Sur., elev. 1,770 ft.....Drlg. 6,630 ft.
Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.G.&N. Sur., elev. 1,175 ft.....Shut down 3,900 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 3,130 ft.....Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,310 ft.
W. B. Thraves et al's No. 1 W. E. Wilson.....Shut down 930 ft.

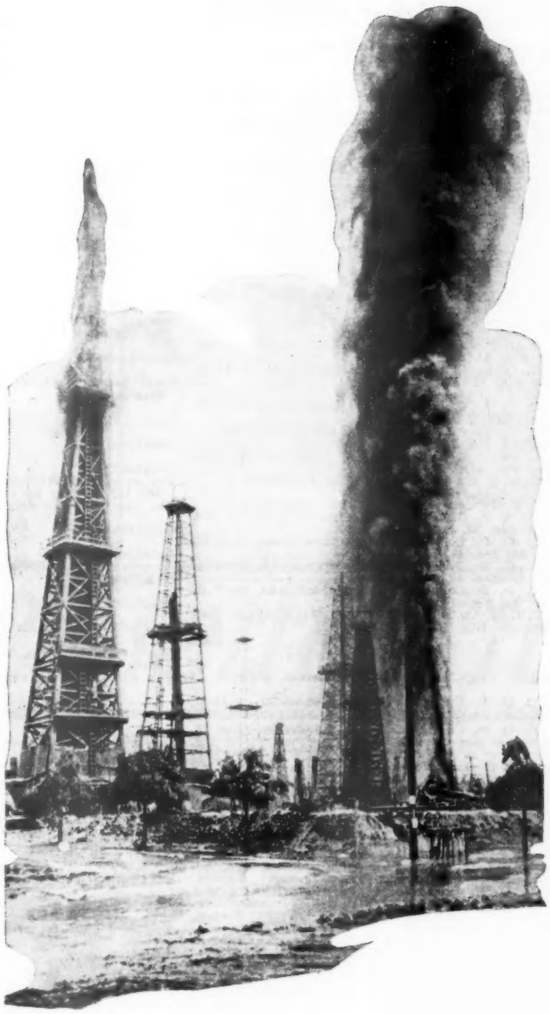
WARD COUNTY

Alfredo Del Cambre's No. 1 Lee Monroe, Sec. 50, Blk. 33, H.&T.C. Sur.....Spudded and shut down.
E. H. Devore et al's No. 1 Black, Sec. 214, Blk. 34, H.&T.C. Sur.....Spudded and shut down.
Estex Oil Co.'s No. 1 W. A. Estes, Sec. 4, Blk. B-29, 3,500-ft. test.....Drlg. 65 ft.
Great Basin Oil Co.'s No. 1 M. T. Eudaley, 2,200 ft. from NE line, 1,800 ft. from SE line, Sec. 36, Blk. 4, H.&T.C. Sur.....Top salt 541 ft.; drlg. 1,150 ft.
Selby Oil Co. et al's No. 1 A. G. Dooley et al, Sec. 85, Blk. A, G.M.M.&A. Sur.....Drlg. 2,015 ft.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 45, Blk. 36, elev. 2,833 ft.....Fishing 2,502 ft.
Atlantic O. P. Co.'s No. 2 Grisham-Hunter-A, Sec. 34, Blk. B-5.....Shot 480 qts. 2,850-2,999 ft.; shot 960 qts. 2,800-2,991 ft.; no results; total depth 3,000 ft.; moving in rotary.
Atlantic O. P. Co.'s No. 6 Grisham-Hunter, NW cor. SE SW Sec. 34, Blk. B-5.....Top salt 1,400 ft.; top lime 2,486 ft.; drlg. 3,000 ft.; flowing 130 bbls. an hour.
Atlantic O. P. Co.'s No. 7 Grisham-Hunter-A, NE SE E half, SW Sec. 34, Blk. B-5.....Top lime 2,490 ft.; drlg. 2,793 ft.
Atlantic O. P. Co.'s No. 8 Grisham-Hunter-A, SE NE E half SW Sec. 34, Blk. B-5.....Top lime 2,456 ft.; setting 8-in. casing 2,459 ft.
Atlantic O. P. Co.'s No. 2 Grisham-Hunter-E, NW cor. Sec. 41, Blk. B-5.....Location.
Atlantic O. P. Co.'s No. 3 Grisham-Hunter-"E", CNL N half NE Sec. 41, Blk. B-5.....Location.
Atlantic O. P. Co.'s No. 4 Grisham-Hunter-E, SE NE NE Sec. 41, Blk. B-5.....Top salt 1,274 ft.; top lime 2,515 ft.; show oil 2,754-66 ft.; drlg. 2,930 ft.
Atlantic O. P. Co.'s and Collett's No. 3 Hendrick-F, NW NE NW Sec. 40, Blk. 46.....Drill stem stuck 1,151 ft.; lubricating.
Atlantic and Collett's No. 4 Hendrick-F, NE NW Sec. 40, Blk. 26.....Top lime 2,343 ft.; setting 8-in. casing 2,346 ft.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter-C (was Lemar) SW cor. Sec. 40, Blk. B-5.....Total depth 2,978 ft.; gas pressure split connections; est. 75,000,000 ft. gas; running wild; trying to kill gas; top salt 1,573 ft.; top lime 2,200 ft.
Atlantic O. P. Co.'s No. 3 Ida Hendricks-D, NW SE NW Sec. 29, Blk. B-5.....Top salt 1,415 ft; Top lime 2,568 ft.; gas 2,600 ft.; drlg. 2,806 ft. in bad hole.
Atlantic O. P. Co.'s No. 5 Ida Hendricks-D, SW SE S half NW Sec. 29, Blk. B-5.....Top salt 1,543 ft.; top lime 2,580 ft.
Atlantic O. P. Co.'s No. 6 Hendricks-D, SE cor. SW S half NW Sec. 29, B-5.....Top lime 2,667 ft.; drlg. 2,670 ft.
Atlantic O. P. Co.'s No. 7 Hendricks-D, NW cor. SW S half NW Sec. 29, Blk. B-5.....Total depth 2,605 ft.; drlg. by tools 2,387 ft.
Atlantic O. P. and Collett's No. 2 Ida Hendricks-F.....Top salt 1,984 ft.; top lime 2,458 ft.; drlg. 2,675 ft.
Atlantic and Collett's No. 5 Ida Hendricks-F, SE SW NW Sec. 40, Blk. 26.....Drlg. 350 ft.
Atlantic and Collett's No. 6 Ida Hendricks-F, SW SE NW Sec. 40, Blk. 26.....Building rig.
V. T. Bolin et al's No. 1 Brown.....Top salt 1,302 ft.; drlg. 2,475 ft.
Cranfill & Reynolds' No. 1 Hendricks-D, SW NW NW Sec. 28, Blk. 26.....Mixing mud 320 ft.; lost returns.
Danciger et al's No. 1 John Sealy, SW cor. NE Sec. 93, Blk. A, G.M.M.B.&A. Sur.....Drlg. 1,060 ft.
Gibson-Johnson and Kessler & Logan's No. 1 Lack, C SW Sec. 3, Blk. 74.....Top salt 1,980 ft.; drlg. 2,753 ft.
Gibson-Johnson's No. 1 Lunn Daugherty, SE NW SW Sec. 3, Blk. 74.....Location.
Gulf Prod. Co.'s No. 2 T. G. Hendricks, NE NW NW Sec. 34, Blk. B-5.....Rig standing.
Gulf Prod. Co.'s No. 8 T. G. Hendricks, Sec. 34, Blk. B-5.....Junked hole 1,180 ft.
Gulf Prod. Co.'s No. 9 T. G. Hendricks, Sec. 34, Blk. B-5.....Top lime 1,837 ft.; top pay 2,824 ft.; flowing 100 bbls. per day, 50 per cent water; total depth 2,958 ft.; bailing down to 350 ft. off bottom.
Gulf Prod. Co.'s No. 11 T. G. Hendricks, Sec. 34, Blk. B-5.....Top salt 1,625 ft.; top lime 2,453 ft.; drlg. 2,861 ft.
Gulf Prod. Co.'s No. 12 T. G. Hendricks, Sec. 34, Blk. B-5.....Top lime 2,342 ft.; top salt 1,410 ft.; setting 6-in. casing 2,740 ft.
Gulf Prod. Co.'s No. 13 T. G. Hendricks, Sec. 40, Blk. B-5.....Top salt 1,340 ft.; top lime 2,344 ft.; shut down 2,945 ft.
Gulf Prod. Co.'s No. 15 T. G. Hendicks, C NW SW NW Sec. 40, Blk. B-5.....Drlg. 2,410 ft.
Gulf Prod. Co.'s No. 16 T. G. Hendricks, NW cor. Sec. 40, Blk. B-5.....Location.
Gulf Prod. Co.'s No. 17 Hendricks, SE cor. NE Sec. 45, Blk. 26.....Location.
Humble O. & R. Co.'s No. 1 Hendricks-C, SE cor. Sec. 32, Blk. 26.....Top salt 2,225 ft; top lime 2,517 ft.; drlg. 2,806 ft.
Humble O. & R. Co.'s No. 2 Hendricks-C, SE NE SE Sec. 32, Blk. 26.....Rigging up rig.

980 feet with one Stellited cable bit



THIS footage was made by the Continental Oil Company in drilling a well in Jackson County, Colorado.

Starting with ordinary steel cable tool bits, they made 30 feet with each dressing of a bit. Then they applied a layer of Haynes Stellite on the reaming edge. Drilling through soft and hard gray shale, shells, lime and sand, this one Stellited bit made 980 feet without re-dressing or re-Stelliting.

The use of Stellite hastened the drilling of this well at least 25 percent, and saved not only time and money but bit stock as well.

Whenever an abrasion-resisting metal is needed, Haynes Stellite has no equal. There is nothing difficult about the application of Stellite either. Stelliting simply means the flowing of a layer of molten Haynes Stellite rod on the wearing surface with the oxy-acetylene flame using an excess of acetylene.

Ask our nearest district office for the booklet, "Haynes Stellite in the Oil Fields." It will interest you.

HAYNES STELLITE COMPANY

Unit of Union Carbide and Carbon Corporation

Kokomo, Indiana

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Stelliting with

HAYNES STELLITE

Humble O. & R. Co.'s No. 3 Hendricks-C, SE NE NE Sec. 32, Blk. 26	Rigging up rig.
Humble O. & R. Co.'s No. 4 Hendricks-C, SE cor. NE Sec. 32, Blk. 26	Derrick.
Humble O. & R. Co.'s No. 1 J. B. Walton-B, SE cor. N half Sec. 47, Blk. 26	Derrick.
Humble O. & R. Co.'s No. 1 J. B. Walton-A, NW cor. Sec. 48, Blk. 26	Derrick.
Humble O. & R. Co.'s No. 3 Grisham-Hunter, Sec. 34, Blk. B-5	Top salt 1,365 ft.; top lime 2,155 ft.; shut down 2,898 ft.; 50,000,000 ft. gas.
Humble O. & R. Co.'s No. 8 Grisham-Hunter	Top salt 1,240 ft.; top lime 2,323 ft.; shut down 2,915 ft.; mudding casing.
Humble O. & R. Co.'s No. 9 Grisham-Hunter, NE NE Sec. 34, Blk. B-5	Top salt 1,310 ft.; total depth 2,188 ft.; preparing to ream.
Humble O. & R. Co.'s No. 11 Grisham-Hunter, SW cor. W half NW Sec. 41, Blk. B-5	Drlg. 2,300 ft.
Humble O. & R. Co.'s No. 14 Grisham-Hunter, NE W half NW Sec. 41, Blk. B-5	Shut down 520 ft.
Humble O. & R. Co.'s No. 12 Grisham-Hunter, NE SW NE Sec. 34, Blk. B-5	Top salt 1,689 ft; top lime 2,xxx ft.; drlg. 2,426 ft.
Humble O. & R. Co.'s No. 13 Grisham-Hunter, NW SE NE Sec. 34, Blk. B-5	Drlg. 197 ft.
Humble O. & R. Co.'s No. 6 Ida Hendricks-"B", NE NW SE Sec. 29, Blk. B-5	Top salt 1,345 ft.; top lime 2,51x ft.; drlg. 2,847 ft.
Humble O. & R. Co.'s No. 7 Ida Hendricks-B, SE NW N half SE Sec. 29, Blk. B-5	Shut down 210 ft.
Independent O. & G. Co.'s No. 3 Grisham-Hunter, SE NW SW Sec. 34	Top salt 1,485 ft.; top lime 2.50x ft.; drlg. 2,820 ft.
Independent O. & G. Co.'s No. 2 Vardeman-B, SE NE NW Sec. 41, Blk. B-5	Top salt 1,340 ft.; top lime 2,32x ft.; fishing for tools 2,856 ft.
Independent O. & G. Co.'s No. 5 Vardeman-B, NW SE NW Sec. 41, Blk. B-5	Top salt 1,570 ft.; top lime 2,39x ft.; drlg. 2,400 ft.
Independent O. & G. Co.'s No. 6 Vardeman-B, NW cor. E half NW Sec. 41, Blk. B-5	Drlg. 642 ft.
Independent O. & G. Co.'s No. 1 E. W. Cowden, SE NW NW Sec. 36, Blk. B-5	Drlg. 2,880 ft.; increased to 150 bbls.
Liner Drlg. Co.'s No. 1 Seth-Campbell, NE cor. Sec. 2, Blk. B-5	Shut down 450 ft.
Landreth and Roxana's No. 1 E. W. Cowden-A, NW cor. Sec. 3, Blk. 12	Shut down 212 ft.
Landreth Prod. Co.'s No. 1 T. G. Hendricks-B, NW cor. E half NE Sec. 40, Blk. 26	Top salt 1,496 ft.; drlg. 1,849 ft.
Landreth and Roxana's No. 2 Hendricks-B, SE cor. E half NE Sec. 40, Blk. 26	Building rig.
Landreth and Roxana's No. 5 Ida Hendricks-A, NW NE SW Sec. 29, Blk. B-5	Top lime 2,655 ft.; fishing 2,670 ft.
Landreth and Roxana's No. 6 Hendricks-A, NE cor. NW SW Sec. 29, Blk. B-5	Top salt 1,543 ft; drlg. 2,630 ft.
Landreth and Roxana's No. 1 Hendricks-D, NE cor. E half SE Sec. 40, Blk. 26	Rigging up rig.
Marland Oil Co.'s No. 1 T. G. Hendricks, SE cor. W half Sec. 33, Blk. 26	Drlg. 2,315 ft.
Marland Oil Co.'s No. 2 T. G. Hendricks, NE SE SE Sec. 33, Blk. 26	Cellar.
Marland Oil Co.'s No. 3 T. G. Hendricks, NE SE SW Sec. 33, Blk. 26	Drlg. 1,910 ft.
Marland Oil Co.'s No. 4 T. G. Hendricks, SW NE SW Sec. 33, Blk. 26	Location.
Marland Oil Co.'s No. 5 T. G. Hendricks, NW NE SW Sec. 33, Blk. 26	Location.
Marland Oil Co.'s No. 6 T. G. Hendricks, NE cor. SW Sec. 33, Blk. 26	Location.
Magnolia Pet. Co.'s (was G. M. Church et al's) No. 2 Ida Hendricks	Show oil 2,760 ft.; top pay 2,86x ft.; total depth 2,961 ft.; ran 5-in. with packer to 2,955 ft.; failed to shut off water; plugging back.
Magnolia Pet. Co.'s No. 5 Ida Hendricks	Top salt 1,624 ft.; top lime 2,509 ft.; top pay 2,940 ft.; shut down 3,022 ft.; no production.
Magnolia Pet. Co.'s No. 7 Ida Hendricks	Top lime 2,448 ft.; top salt 1,365 ft.; setting 5-in. casing 3,005 ft.
Magnolia Pet. Co.'s No. 8 Ida Hendricks	Top salt 1,510 ft.; top lime 2,495 ft.; show oil 2,795 ft.; drlg. 2,880 ft.
Murchison Oil Co. et al's No. 1 Grisham-Hunter-B, NE cor. SW SW Sec. 35, Blk. B-5	Top salt 1,335 ft.; shut down 2,427 ft.
Murchison Oil Co. et al's No. 2 Grisham-Hunter-B	Location.
Mining & Engineering Co.'s No. 1 T. G. Hendricks, Sec. 10, Blk. B-12	Hole full fresh water; shut down 1,232 ft.
Murchison Oil Co. and Cranfill Bros.' No. 2 Grisham-Hunter-A	Location.
Murchison Oil Co. and Cranfill Bros.' No. 4 Grisham-Hunter	Location.
Murchison Oil Co. and Cranfill Bros.' No. 1 Hendricks-H (5-acre tract), Sec. 33, Blk. 26	Drlg. 1,390 ft.
Prairie O. & G. Co.'s No. 1 T. G. Hendricks, NW cor. E half SW Sec. 40, Blk. 26	Moving in rig.
Pure Oil Co.'s No. 5 Hendricks-B, SE SW SE Sec. 34, Blk. B-5	Top lime 2,420 ft.; top salt 1,412 ft.; drlg. 2,762 ft.
Pure Oil Co.'s No. 6 Hendricks-B	Top salt 1,315 ft.; top lime 2,388 ft.; drlg. 2,865 ft.
Pure Oil Co.'s No. 7 Hendricks-B, NE SE SE Sec. 34, Blk. B-5	Top salt 1,212 ft; top lime 2,331 ft.; drlg. 2,560 ft.
Pure Oil Co.'s No. 8 Hendricks-B, SE NE SE Sec. 34, Blk. B-5	Top salt 1,479 ft.; drlg. 2,295 ft.
Pure Oil Co.'s No. 9 Hendricks-B, NW NE SE Sec. 34, Blk. B-5	Top salt 1,240 ft.; drlg. 2,268 ft.
Pure Oil Co.'s No. 10 Hendricks-B, NE NW SE Sec. 34, Blk. B-5	Drlg. 2,311 ft.
Pure Oil Co.'s No. 11 Hendricks-B, SW NW SE Sec. 34, Blk. B-5	Drlg. 2,399 ft.
Pure Oil Co.'s No. 12 Hendricks-B, NW SW SE Sec. 34, Blk. B-5	Top lime 2,420 ft.; drlg. 2,440 ft.
Pure Oil Co.'s No. 13 Hendricks-B, NW SE SE Sec. 34, Blk. B-5	Drlg. 1,160 ft.
Pure Oil Co.'s No. 14 Hendricks-B, NE SW SE Sec. 34, Blk. B-5	Rig.
Pure Oil Co.'s No. 15 Hendricks-B, SE NW SE Sec. 34, Blk. B-5	Material on ground.
Pure Oil Co.'s No. 16 Hendricks-B, SW NE SE Sec. 34, Blk. B-5	Material on ground.
Pure Oil Co.'s No. 1 Grisham-Hunter-C	Fishing for drill stem 2,421 ft.
Pure Oil Co.'s No. 2 Grisham-Hunter-C, SW cor. SE Sec. 45, Blk. 26	Building rig.
Pure Oil Co.'s No. 3 Grisham-Hunter-C, SE cor. Sec. 45, Blk. 26	Building rig.
Pure Oil Co.'s No. 4 Grisham-Hunter-C, NE cor. SE Sec. 45, Blk. 26	Material on ground.
Pure Oil Co.'s No. 6 Grisham-Hunter, NW SW Sec. 41, Blk. B-5	Top salt 2,015 ft. top lime 2,550 ft.; drlg. 2,554 ft.
Republic Prod. Co.'s No. 1-A, Grisham-Hunter-B, SW co. E half SE Sec. 41, Blk. B-5	Top salt 1,240 ft.; top lime 2,135 ft.; standardizing 2,390 ft.
Republic Prod. Co.'s No. 3 Grisham-Hunter-B, NE cor. SE Sec. 41, Blk. B-5	Top salt 1,280 ft; top lime 2,340 ft. (corrected); total depth 2,980 ft; killing gas.
Republic Prod. Co.'s No. 2 Hendricks-A, NE E half SW Sec. 46, Blk. 26	Top salt 1,240 ft.; top lime 2,135 ft.; fishing 2,302 ft.
Republic Prod. Co.'s No. 1 Hendricks-C, SW NE NE Sec. 42, Blk. B-5	Mixing mud 2,047 ft.; lost returns.
Republic Prod. Co.'s No. 2 Ida Hendricks-C, Sec. 42, Blk. B-5	Shut down 1,281 ft.
Roxana Pet. Corp.'s No. 4 Hendricks-B, NE cor. SW S half SE Sec. 29, Blk. B-5	Top salt 1,500 ft.; drlg. 2,669 ft.
Roxana Pet. Corp.'s No. 5 Ida Hendricks-B, SE cor. SW S half SE Sec. 29, Blk. B-5	Top salt 1,520 ft.; top lime 2,6xx ft.; setting 8-in. casing 2,665 ft.
Roxana Oil Corp.'s No. 6 Hendricks-B, SE cor. Sec. 29, Blk. B-5	Location.
Roxana Pet. Corp.'s No. 7 Ida Hendricks-C, SE SW N half NW Sec. 29, Blk. B-5	Top salt 1,326 ft; top lime 2,67x ft.; drlg. 2,980 ft.; flowing 72x bbls.
Roxana Pet. Corp.'s No. 8 Hendricks-C, SW cor. N half NW Sec. 29, Blk. B-5	Top salt 1,555 ft; top lime 2,6xx ft.; drlg. 2,626 ft.
Roxana Pet. Corp.'s No. 4 Grisham-Hunter-D, NE cor. S half NE Sec. 41, Blk. B-5	Top salt 1,230 ft.; top lime 2,34x ft; shut down 2,765 ft; top pay 2,656 ft.; flowing 360 bbls.; shut in preparing to deepen.
Roxana Pet. Corp.'s No. 5 Grisham-Hunter-D, SE SW NE Sec. 41, Blk. B-5	Shut down 600 ft.
Roxana Pet. Corp. No. 6 Grisham-Hunter-D, SW SE NE Sec. 41, Blk. B-5	Cellar.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-E	Mixing mud 2,646 ft.; lost returns.
Roxana Pet. Corp. and Llano Oil Co.'s No. 2 W. F. Scarborough, SW cor. NE Sec. 1, Blk. C-22, School Land	Top salt 1,120 ft.; top pay 3,13x-xx ft.; drlg. 3,260 ft.
Sheldon & Burden's No. 1 Ida Hendricks, SW cor. SE Sec. 28, Blk. B-5 (10-a. tract)	Top salt 1,260 ft.; top lime 2,64x ft.; top pay 2,719 ft.; total depth 3,243 ft.; shut down.
Skelly Oil Co.'s No. 1 Hendricks, NW cor. W half NE Sec. 40, Blk. 26	Drlg. 2,100 ft.
Southern C. O. P. Co.'s No. 2 T-89 Grisham-Hunter-A, Sec. 35, Blk. B-5	Top salt 1,189 ft.; bailing casing 2,301 ft.
Southern C. O. P. Co.'s No. 3 T-89-A Grisham-Hunter-A	Top salt 1,072 ft.; top lime 2,15x ft.; drlg. 2,715 ft.; spraying oil
Southern C. O. P. Co.'s No. 4 T-89-A Grisham-Hunter-A	Rig.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, 3-T-67-A, C SW NW NE Sec. 4, Blk. B-12, elev. 2,784 ft.	Top lime 2,638 ft.; top salt 1,52x ft.; drlg. 2,957 ft.
Southern C. O. P. Co.'s No. 2 T-67-A, NE SE Sec. 42, Blk. B-5	Top salt 1,835 ft.; top lime 2,64x ft.; drlg. 2,705 ft.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-67-A, NE cor. SE SE Sec. 42, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-67-A, SE cor. NE Sec. 42, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 2 Ida Hendricks 3-T-67-A	Top salt 1,525 ft.; top lime 2,64x ft; reaming 2,929 ft.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-67-3-A, Sec. 4, Blk. B-12	Shut down 2,117 ft.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-67-E, SE NE Sec. 42, Blk. B-5	Total depth 2,573 ft; rigging up standard tools.
Southern C. O. P. Co.'s No. 2 Ida Hendricks, T-67-E, NE cor. SE NE Sec. 42, Blk. B-5	Drlg. 1,504 ft.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-67-E, SE cor. NE NE Sec. 42, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-67-E, NE cor. Sec. 42, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 2 T-67, Ida Hendricks-F	Top salt 1,715 ft; total depth 1,250 ft; rigging up rotary.
Southern C. O. P. Co.'s No. 5 T-67 Ida Hendricks-C	Top pay 2,890 ft.; drlg. 3,025 ft.
Southern C. O. P. Co.'s No. 3 Hendricks, T-67-3B, NE NW SW Sec. 33, Blk. 26	Location.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-67-B, SE NE SE Sec. 44, Blk. 26	Location.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-67-B, NE SE SE Sec. 44, Blk. 26	Location.
Southern C. O. P. Co.'s No. 5 Ida Hendricks, T-67-B, SE cor. SE Sec. 44, Blk. 26	Location.
Southern C. O. P. Co.'s No. 1 T-88 Ida Hendricks-C, NW cor. Sec. 28, Blk. B-5	6,000,000 ft. gas 2,665 ft.; top pay 2,883-96 ft.; 500 ft. oil; fishing job 2,906 ft.; shut down for orders.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-88-C	Top salt 1,290 ft.; top lime 2,53x ft.; cleaning out.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-88-G, SW SE Sec. 28, Blk. B-5	Top lime 2,612 ft; fishing 2,906 ft.
Southern C. O. P. Co.'s No. 2 Ida Hendricks, T-88-H, SW NW SW Sec. 28, Blk. B-5	Top salt 1,300 ft; total depth 1,702 ft.
Southern C. O. P. Co.'s No. 2 Ida Hendricks, T-88-I, NE SE E half NE Sec. 30, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 4, Ida Hendricks, T-88-A, SE NE SE Sec. 44, Blk. 26	Location.
Southern C. O. P. Co.'s No. 5 Ida Hendricks, T-88-A, NE cor. Sec. 44, Blk. 26	Location.
Southern C. O. P. Co.'s No. 2 Ida Hendricks, T-88-I, SE NE E half NE Sec. 30, Blk. B-5	Rigging up rig.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-88-A, NE SE NE Sec. 44, Blk. 26	Rigging up rig.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-88-I, SE cor. E half NE Sec. 30, Blk. B-5	Location.
Southern C. O. P. Co.'s No. 1 T. G. Hendricks, T-88-K, NE cor. Sec. 41, Blk. 26	Top salt 1,706 ft; drlg. 2,631 ft.
Southern C. O. P. Co.'s No. 2 T. G. Hendricks, T-88-K, SE NE SE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 3 T. G. Hendricks, T-88-K, NE SE NE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 4 T. G. Hendricks, T-88-K, SE SE NE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 5 T. G. Hendricks, T-88-K, NE NE SE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 6 T. G. Hendricks, T-88-K, SE NE SE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 7 T. G. Hendricks, T-88-K, NE SE SE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 8 T. G. Hendricks, T-88-K, SE cor. SE Sec. 41, Blk. 26	Location.
Southern C. O. P. Co.'s No. 1 Hendricks, T-88-M, SW cor. SE Sec. 33, Blk. 26	Mixing mud 1,610 ft.; lost returns.
Southern C. O. P. Co.'s No. 2 Hendricks, T-88-M, NW SW SE Sec. 33, Blk. 26	Mixing mud 683 ft.
Southern C. O. P. Co.'s No. 3 Hendricks, T-88-M, SE NE SW Sec. 33, Blk. 26	Drlg. 440 ft.
Southern C. O. P. Co.'s No. 4 Hendricks, T-88-M, SE NW SW Sec. 33, Blk. 26	Drlg. 1,127 ft.
Southern C. O. P. Co.'s No. 5 Hendricks, T-88-M, SW SE SE Sec. 33, Blk. 26	Location.
Southern C. O. P. Co.'s No. 6 Hendricks, T-88-M, SE SW NW Sec. 33, Blk. 26	Location.
Southern C. O. P. Co.'s No. 7 Hendricks, T-88-M, NE SW NE Sec. 33, Blk. 26	Location.
Southern C. O. P. Co.'s No. 1 E. G. Hutchings, T-90, NE cor. E half SE Sec. 47, Blk. 26, elev. 2,835 ft.	Top salt 935 ft.; top lime 2,340 ft.; fishing for stem 2,705 ft.
Texon O. & L. Co.'s No. 3 Grisham-Hunter-A, NW cor. W half SE Sec. 41, Blk. B-5	Top salt 1,450 ft.; top lime 2,32x ft.; setting 6-in. casing 2,539 ft.
Texon O. & L. Co.'s No. 4 Grisham-Hunter-A, NE cor. W half SE Sec. 41, Blk. B-5	Rig and shut down.
Texon O. & L. Co.'s No. 3 Hendricks-B, SE W half SW Sec. 45, Blk. 26	Drlg. 390 ft.
Turman & Maxwell's No. 5 Hendricks, SE cor. E half NE Sec. 29, Blk. B-5	Top lime 2,560 ft.; top salt 1,29x ft.; shut down for orders 2,367 ft.
Turman & Maxwell's No. 6 Hendricks, NW cor. E half NE Sec. 29, Blk. B-5	Top salt 1,217 ft.; top lime 2,471 ft.; top pay 2,780 ft.; shut down for orders 2,950 ft.
White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 P. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 1,530 ft.	Top lime 3,155 ft; shut down 3,700 ft; 500 ft. sulphur water in hole from 3,693-3,700 ft.

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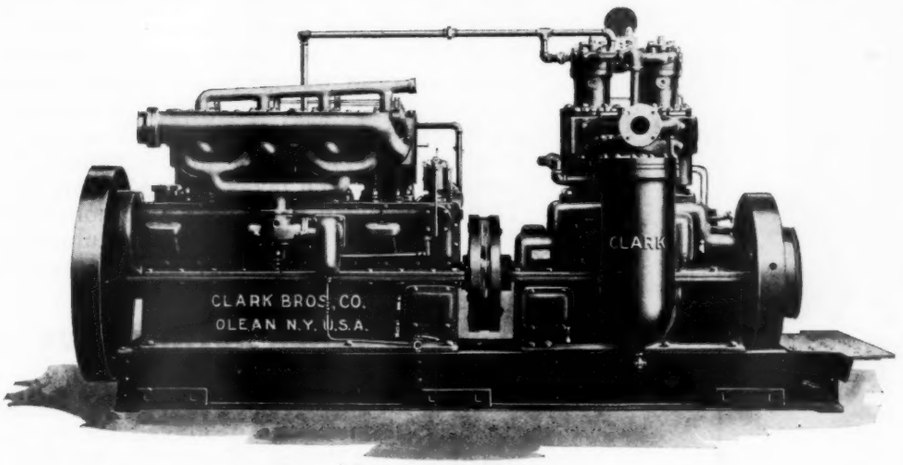

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Clark Bros. Co. Olean, N.Y.

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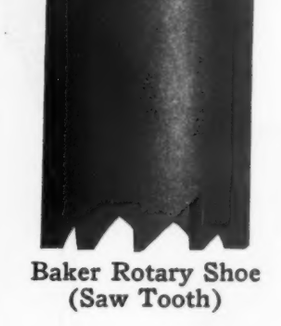
(Saw Tooth)



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[Saw-Tooth]

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THE BAKER PATTERN CASING SHOE

The bottom is made with a series of cutting chisels, which cut off portions of the wall, permitting the casing to follow easily without hanging up. With the Baker Pattern Casing Shoe available it is often possible to drill a well without underreaming. Saves the difference in cost over a plain shoe.

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is not an ordinary casing shoe. It is a finished product made to established standards, both as to material and dimensions, which are the result of more than 30 years' experience in the manufacture and use of casing shoes. All standard sizes, including the new A.P.I. sizes.

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RECORD OF OIL DEVELOPMENT IN NORTHEASTERN MISSISSIPPI

By Anthony McCauley

WOODLAND, Miss., Apr. 14.—Following is a complete resume of all wells in northeastern Mississippi, taken in their order of completion, or by depths where drilling is in progress, together with a list of wells shut down:

The first well, Amory Petroleum Co.'s No. 1 Carter, 6 miles east of the town of Amory, in the north part of Monroe County, which started drilling in the Tuscaloosa outcrops and was brought in as a discovery gasser in the Bangor limestone (Lower Carboniferous) at 2,412 feet, has increased from 4,000,000 to 6,000,000 feet per day open flow. The Amory Gas Co. is taking this gas, supplying the town of Amory for domestic and industrial uses, and also furnishing gas to several tests drilling in that district.

The second well, Quincy Oil Co.'s No. 1 Darrett, drilled at Quincy, in north Monroe County, about 3½ miles southeast of the Carter gas discovery, ran into salt water at 3,000 feet, and the operators assume this result indicates that the location was made either in a syncline or on the wrong side of a fault.

The third well, Natural Gas & Fuel Co.'s No. 1 Rye, 15 miles southeast of the Carter gas discovery, in north Monroe County, was the second commercial gas producer in northeastern Mississippi, being brought in at 2,712 feet in a 22-foot gas sand in the Bangor lime for 4,000,000 feet per day, and increasing to 10,000,000 feet per day, with a rock pressure of 900 to 1,100 pounds to the square inch, when shot at 2,712 feet, where the formation had started changing from the gas sand to a white, porous sandy lime, the shot resulting in the well's gradually blowing in salt water until it was practically drowned out. It still blows gas at intervals. The company is now arranging to drill its second test at a point 3 mi'es northeast of its No. 1 Rye. This well was started by Demontrond & Brummett, who sold spreads to seven of the big companies and retained a one-eighth interest. Hayes Brummett has drilled a number of wells in the Mid-Continent. The Natural Gas & Fuel Co., which took over and finished the well, is identified by the recent merger with the Arkansas Fuel Oil Co., a subsidiary of Benedum-Trees of Pittsburgh, Pa. The Ohio Oil Co. took one spread and is now the leading holder of acreage around No. 1 Rye. Demontrond & Brummett have headquarters in Aberdeen, the county seat of Monroe County.

Dry West of Discovery

The fourth well, Amory Petroleum Co.'s No. 1 Dill, 1 mile west of the Carter gas discovery, in north Monroe County, taken over by the Amory Natural Gas Co. (which bought the gas output from the Amory Petroleum Co.'s No. 1 Carter), was delayed three months on account of losing a string of too's in the hole, but was drilled to 2,500 feet into salt water, where it was completed, called a dry hole, and abandoned.

The fifth well, Amory Petroleum Co.'s No. 1 Hall, 1 mi'e east of the No. 1 Carter, after drilling to 2,280 feet struck a sand and had a good showing of oil, but lost a string of tools and three joints of casing. They are now fishing for the tools and three joints with the hope of recovering them within a few days, when they expect to resume drilling, and G. Gillespie, the field manager, is confident they will get an oil well there. Some geologists figure that the Amory Petroleum Co.'s No. 1 Carter gas discovery is either on the crest or near the top of the eastern slope of the Appalachian divide, and they hold the theory that there is a fault running from northwest to southeast across the Amory district in north Monroe County.

The sixth well, The Texas Company and Arkansas Fuel Oil Co.'s (Benedum-Trees) No. 1 Day, being drilled by P. J. McAlpin under a 4,000-foot contract, got shows of salt water around 3,560 feet, at the forks of the Tombigbee and Buddahatchie Rivers, in southeastern Monroe County.

The seventh well to start, owned by Moody & Seagraves, in the east part of Lee County, adjoining the west part of Monroe County on the north, and being drilled by P. J. McAlpin on a 3,500-foot contract, is drilling at 3,410 feet. It has had good shows of oil and gas at different depths, and the gas became ignited and burned 15 feet high in the derrick when they were drilling around 2,600 feet, and oil was discernible on the slush pit. However, it looked "asphalty" and apparently was dead oil. Several sands penetrated had a strong odor of petroleum, besides those sands in which actual oil shows occurred. The structure was worked out, and the location for this test was made by H. D. Easton of Shreveport, La., who also made the location for the Amory Petroleum Co.'s No. 1 Carter gas discovery.

Wells Closely Watched

All of these wells are being closely watched by scouts and geologists for a number of the major companies. The land department men for half a dozen big companies have already assembled large drilling blocks and representatives of other majors are in the process of organizing other drilling blocks, with the apparent intention of putting down widely scattered tests, so that northeastern Mississippi bids fair to see at least a half dozen new deep tryouts going down by midsummer.

The records show that the Gulf Refining Co. has taken leases on more than 40,000 acres in the Amory district alone, in north Monroe County, and the Ohio Oil Co. has almost as much acreage, while a number of independent wildcatters have taken up all available remaining leases and royalties in this Amory territory. T. B. Slick of Oklahoma owns 3,000 acres in fee, adjoining the city limits of Aberdeen on the southwest, in the central part of Monroe County.

Marland Oil Co. has bought and owns in fee simple 17,000 acres in southeast Noxubee County, on the Alabama line, and adjoining on the south Lowndes County, which adjoins Monroe County on the south. E. W. Marland has a wild game preserve, a hunting lodge, and operates a big plantation on these Noxubee lands. Tom McHenry, original owner of a major portion of this acreage, who interested the Marland organization in its petroleum possibilities, died last week. It was his life dream to see the bringing in of an oil pool in northeastern Mississippi, and with the bringing in of the Amory gas discovery in Lee County, he believed this hope would be realized in Noxubee County, further down the southwest slope of the Appalachian uplift.

More Started in Monroe

In Amory district, five wells have been started. Tubb Oil Co., 1 mile southwest of Amory, in the north part of Monroe County, drilled 400 feet to the top of the Paleozoic, and shut down, presumably for financing.

Sutton's No. 1 Acker, midway between Amory and Aberdeen, in the north part of Monroe County, drilled to 600 feet and brought in a 65,000-bbl. well of pure, fresh water good for domestic purposes and irrigation. They recently plugged with cement, shutting off the flow of water, then drilled through the cement-plug and expect to drill with cable tools through the Paleozoic rocks. Mr. Sutton is an El Dorado, Ark., operator.

Zeundt's No. 1 Taylor, midway between the No. 1 Carter gas discovery and the No. 1 Rye second gas producer, and about 15 miles southeast of Amory, drilled 500 feet to the top of the Paleozoic and shut down. They are planning upon changing from rotary to churn drill. Mr. Zeundt is a Kansas and Oklahoma operator.

Buffalo Oil Co.'s No. 1 Hatley, 5 miles east of Amory, was drilled to the top of the Cretaceous, 480 feet, and abandoned. The derrick at this location blew down

Inspecting Core Recovered in Oil Drilling in Montana

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this week. Gas had been piped from the No. 1 Carter gasser to the No. 1 Hatley for boiler fuel. It is understood that all but 200 acres had been sold out of this drilling block. Resumption of operations on this block are doubtful, unless a reorganization is made under which the acreage is reassembled under a single ownership. This company was headed by the Willis interests of Illinois.

Mawk Oil Co. started operations a year ago on the west side of the Tombigbee River and 5 miles west of Amory, in north Monroe County. It built a derrick, spudded in and shut down, and the well has been abandoned for many months. Whether operations will be resumed here in the early future is a matter of speculation locally.

All of these wells are in Monroe County, except the Moody & Seagraves test, which is in Lee County.

G. Gillespie of Oklahoma and El Dorado, Ark., and Uvalde Burns of Texas built a derrick on a 5,000-acre block about 5 miles south of Fulton, the county seat of Ittawamba County, in the south part of that county, in the latter part of 1926, then shut down.

Wells Drilling

In synopsis, five wells are actually drilling now in northeastern Mississippi, though several others are expected to resume drilling in the near future. The wells actually drilling include the Cumberland Oil Co.'s No. 1 Hesterly, in the northeast corner of Webster County; the Eugene Golsan test, in central Chickasaw County; Amory Petroleum Co.'s No. 1 Hall, in northern Monroe County; The Texas Company and Arkansas Fuel Oil Co.'s No. 1 Day, in southeastern Monroe County; and the Moody-Seagraves test in eastern Lee County.

New drilling locations are being made with a view to getting oil at levels lower down on the southwest slope of the Appalachian uplift than is the Amory gas field in Monroe County, that is, at points to the west, northwest and southwest of Monroe County. Hence the drilling campaigns scheduled for the summer are concentrated in northeastern Webster, central Chickasaw and southeastern Calhoun Counties, where several geologists have contoured what they pronounce to be favorable structures.

Two Wells Get Good Shows

At present, the interest of half a dozen major companies and a flock of independents owning acreage in these localities is centered on two important tests going down in the Woodland district, namely the Cumberland and Golsan wells.

Cumberland Oil Co.'s No. 1 Hesterly, in the SW cor. of the NW of Section 15-21s-11e, near the northeast corner of Webester County, and close to the south line of Chickasaw County, and only 7 miles southwest of the city of Woodland, is reaming at 1,200 feet to set 8-inch casing at 1,500 feet to test 8 feet of oil sand topped at 1,520 feet. The present total depth is 1,678. The oil sand is in the Eutaw member of the Cretaceous age, and the Eutaw sand is correlated by several authorities with the Blossom sand, with which Texas and Louisiana operators are familiar, and which opened up the Caddo Field in Louisiana.

The Cumberland company well, below this Eutaw oil sand, had blue shale from 1,528 to 1,674 feet, and lime from 1,674 to 1,678 feet, where the bit stopped. The conditions of this well from 1,528 to 1,678 feet appear to be confirming the predictions made by the late Dr. J. M. Langston, geologist, who did pioneer reconnaissance work in northeastern Mississippi before his sudden death in Woodland last summer, to the effect that the location he made on the Cumberland structure should get the first pay in the Eutaw (Blossom) sand, at around 1,500 feet, but that his main reliance for big production in this region was the Tuscaloosa (familiarly known as the Woodbine sand in Texas, where it made the famous Mexia Field), and which he opined should be penetrated here at between 1,700 and 1,800 feet, in the lowest member of the Cretaceous age.

The blue shale coming just above the lime, from 1,528 to 1,678 feet, in this Cumberland test, presages the getting of a second oil pay, and a much larger pay than the Eutaw, in the underlying Tuscaloosa (Woodbine) sand.

More than 1,500 feet of 8-inch casing has just been unloaded at the Cumberland O.l Co.'s well and will be set this week at 1,520 feet, preparatory to the testing of the 8-foot sand in the Eutaw.

Eugene Golsan's test drilling 4 miles northeast of the city of Houston, in central Chickasaw County, 12 miles north of Woodland, recently got strong shows of oil and gas at around 300 feet, in the Ripley formation, in the Upper Cretaceous. He is bailing the well preparatory to making a test, which is expected to be finished within a few days. This well may open up a new shallow pool for small production.

PREVENTION RATHER THAN CURE IS AIM

(Continued from Page 40)

duces the number of sick days and makes a marked reduction in the accident rate, besides helping to build up a loyal, satisfied personnel. An interested mind in a healthy body makes an ideal workman.

"In checking over the employment records of more than 2,000 men it has been found that about 4 per cent of the applicants were rejected summarily. About 24 per cent of this number were rejected because of hernia or other conditions that would interfere with their work and prove a source of danger to themselves. Thirty-two per cent of the rejections were on account of defective vision that would make the applicant more subject to accident and a menace to fellow workmen. Twenty-two per cent were rejected because of organic trouble that incapacitated them for hard or long continued labor.

"It will be noted that all these men were rejected because of the greater health or accident risk which they themselves would face or because of the greater risk from accident to which they would subject other employes. This benefits the applicant himself, even though he is rejected, because the examining physician advises him of his condition and recommends any treatment that may be indicated. It benefits the man already employed by not increasing the hazards to which he is exposed.

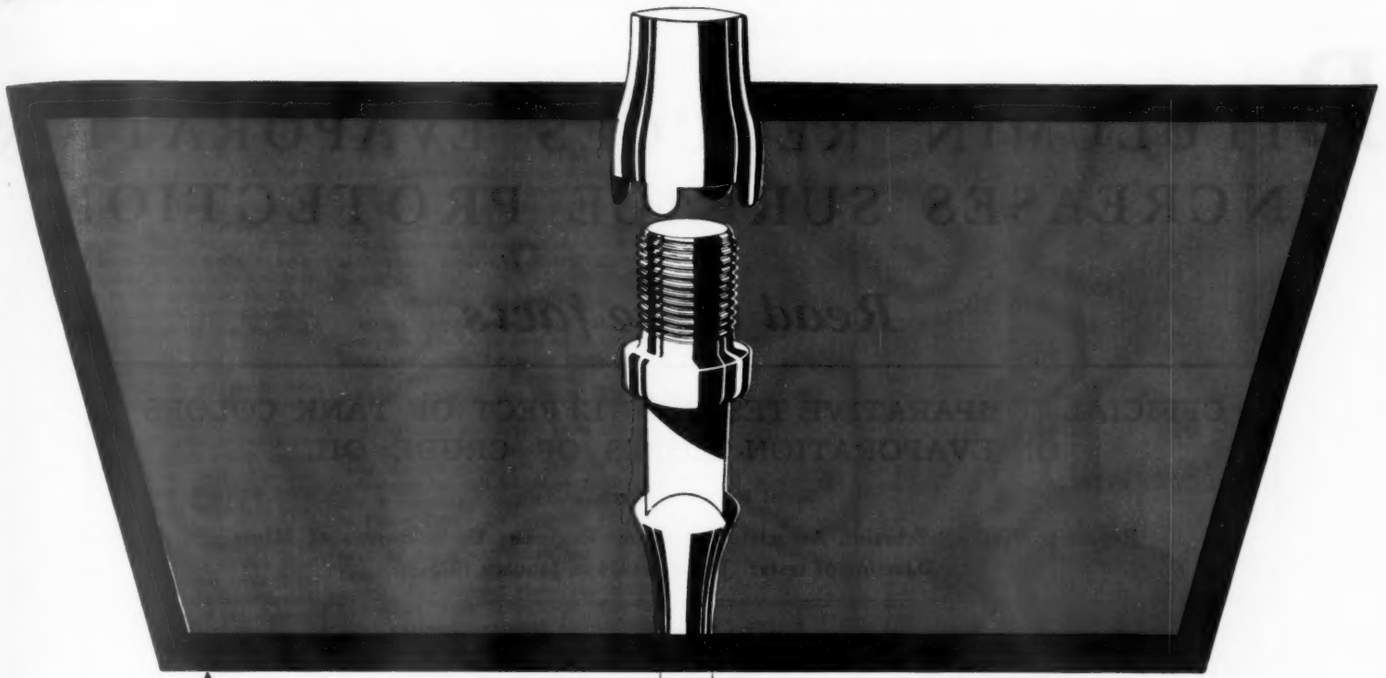
"The remaining 22 per cent were rejected because of various more or less communicable diseases, such as itch, mumps, measles or veneral diseases."

Oil Field Camps Wholesome

Recording the physical condition of each new employe is only the beginning of the preventive and protective program adopted in the operation of a progressive oil company. Although squatters infest every new oil field, living amid insanitary surroundings that breed disease epidemics, the modern oil field camp is constructed on such sanitary lines and is hedged about with such regulations that life there is much more likely to be wholesome than in many a city home.

Comfortable, neatly painted houses stand in rows along concrete sidewalks and gravel streets. Flower beds dot green, well-kept lawns. Each house has modern sanitary conveniences and all are kept in first-rate condition by a force of plumbers, carpenters and painters. Electricity, gas, hot and cold water, screened porches and windows and a sewage disposal system are among the features. These four and five-room houses are occupied by the various foremen. Clean bunk houses, with similar sanitary provisions are at the disposal of other employes who may care to live there. Five such camps are owned by the Carter Oil Co. in the Seminole area. Similar camps are owned by other major companies operating in that field.

Four times a year each lease foreman of the Carter company must inspect the premises over which he has supervision and make a detailed report to Doctor McAnally. This report covers all such matters as general conditions of the grounds, disposition of refuse, condition of garbage stands, presence of stagnant pools of water, nearness of hogs or cattle, source of water supply, freedom from



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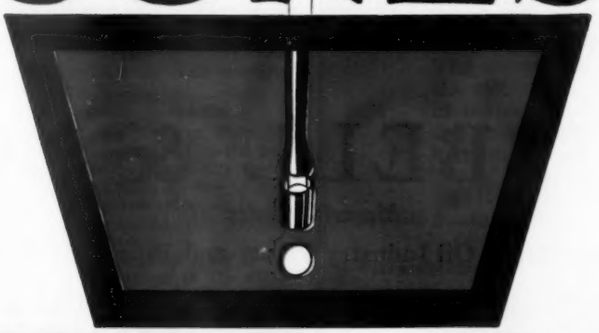

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BITULUMIN REDUCES EVAPORATION INCREASES SURFACE PROTECTION

Read these facts

OFFICIAL COMPARATIVE TESTS OF EFFECT OF TANK COLORS ON EVAPORATION LOSSES OF CRUDE OIL

Serial No. 2677, March, 1925

Report by Ludwig Schmidt, Associate Petroleum Engineer, U. S. Bureau of Mines.
Duration of tests: January 1924 to January 1925

Color	Initial Gauge Barrels	Loss by Barrels	Evaporation %	Loss in Gravity A.P.I.
Black	52058	649	1.24%	.60
Red	53294	609	1.14%	.50
Gray	53192	547	0.99%	.30
Aluminum	53418	447	0.93%	.20

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Bitulumin turns away approximately 86% of harmful sunrays, thus keeping tanks and contents cooler and minimizing evaporation.

Bitulumin forms a light resisting, durable and moisture proof surface. It will outlast the best lead and zinc paints by two to one.

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Bitulumin, put up in double containers to insure fresh mixing, is manufactured by Hill, Hubbell & Company, manufacturers of a special line of paints for the oil industry.

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vermin, cases of sickness, and steps taken to correct any improper conditions found. The company has about 300 oil farms in various parts of Oklahoma, Kansas, Wyoming, Montana and Colorado. The impossibility of one medical director giving these farms personal inspection is obvious, but by this system of requiring quarterly sanitary reports from farm foremen the director is kept in close touch all the time with health conditions at all of the company's properties.

In the Seminole Field the water supply, produced from drilled wells, is softened and chlorinated before it is run into a tank for use in the camp of the Carter company. Frequent bacteriological tests are made. Sewage is run to modern septic tanks.

Epidemic Passes By

As a direct result of all these precautionary measures the oil field workmen living in these sanitarily conducted camps in the Seminole area virtually escaped the typhoid epidemic which swept the squatter districts in 1927. For example, among the Carter Oil Co.'s 2,000 employes in that district only four contracted the disease.

The significance of this record may be understood better when it is known that there were 79 deaths from typhoid in Seminole County in 1927. It is estimated that there were 700 cases of the disease, but authentic figures are lacking, because, according to the State Department of Health, many cases were not officially reported.

Commenting on the available figures relating to the epidemic, Gilbert Harrison, director of the Bureau of Public Health Education, said:

"According to all estimates given out by the United States Public Health Service under ordinary conditions the average death rate from typhoid is one in every 10 cases. In 1927, there were reported to this office 2,326 cases of typhoid and 504 deaths for the entire State, which shows that only approximately one-half of the cases occurring in the State are reported to us. In Seminole County, 123 cases and 79 deaths were reported to the department. No doubt the death rate was higher than 10 per cent, due to the insanitary conditions, but even so, there should have been several hundred more cases reported than there were."

Much First-Aid Work

First-aid teams are organized by the larger oil companies as much as possible, but the frequent transfer of workmen makes it difficult to maintain these teams intact long. Most of the farm foremen are acquainted with the rudiments of first-aid work at least and virtually all are equipped with first-aid kits containing compresses, iodine ampoules, ammonia inhalant, burn ointment, wire splint, eye dressings, tourniquet and forceps.

The Phillips Petroleum Co. has in operation two field hospitals, one at Burbank and the other in the Texas Panhandle Field. These are equipped with X-ray machines and surgical appliances for all operations except those of extraordinary nature. A physician is in charge of each and has a graduate nurse on duty continuously, with an extra nurse or nurses when occasion demands.

All applicants for positions with the company are examined as to physical fitness before they are employed and are re-examined from time to time. Employes are inoculated against typhoid fever, at stated intervals, and, in case of outbreaks of other contagious diseases, at certain points, preventive measures are promptly applied. Sanitary conditions at all camps are closely watched and in camps of major size the company installs adequate sewer connections. Careful check of these facilities and of observance of sanitary rules and regulations is kept. This work includes the periodical testing of all drinking water.

The medical department of the company, in charge of Dr. O. S. Somerville, co-operates with the compensation and public liability department. At outside points, certain physicians are designated for treatment of injured employes, under the supervision of the chief medical director, and it has been found that this arrangement has resulted in much better service and attention being given to employes who are injured in accidents.

The health department of the Marland companies, organized in 1923, consists of a full-time surgeon, an assistant surgeon, two graduate nurses and a dental surgeon.

In Ponca City, Okla., the headquarters of the Marland Companies, is maintained a Marland clinic, open to all employes of the Marland Companies and their families. The clinic has 15 rooms, allotted to examination, consultation, treatments, etc. There is also a dental clinic for employes.

Marland Conducts Clinic

Minor injury cases and ambulatory sick cases are taken care of in the Marland clinic; and for those cases needing hospitalization the Marland Companies maintain beds in the Ponca City Hospital.

All accident and injury cases are cared for by this health department, and outlying district cases are brought by ambulance or by rail where surgical attention is necessary; and this work is done in Ponca City.

First aid work in outlying districts, such as Southwest Texas and the Panhandle district, is done by contract surgeons. At different times the Marland Companies have maintained field hospitals in localities where medical attention could not be provided. They recently abandoned a field hospital in the Texas Panhandle district. These hospitals are under the direct control of the health department and are supervised by a full-time surgeon and usually one nurse. They are usually equipped for handling injury work and for emergency operative work.

All applicants for permanent positions must pass a satisfactory physical examination before employment. In the Ponca City district this is carried out by the Marland clinic. In outlying districts the examinations are contracted for by local physicians.

All employes are required to have yearly physical examinations performed by representatives of the health department. At the time of this examination, recommendations are made in hygiene, education and prevention; and advice for the removal of defects, and a complete history of the employe's sickness and accident record is obtained.

Typhoid and smallpox inoculations are administered to the employes and employes' families in Ponca City district. In outlying districts the administration of these inoculations is carried out by contracted surgeons. The company furnishes the necessary serum, but families must pay the contracted surgeon the necessary fee.

Sanitary regulations in oil-field camps are carried out by the health department, some representative of this department making frequent reports and inspections. Enforcement of these regulations is the responsibility of the district superintendents. This service is provided by the Marland Companies free of any charge to the employe.

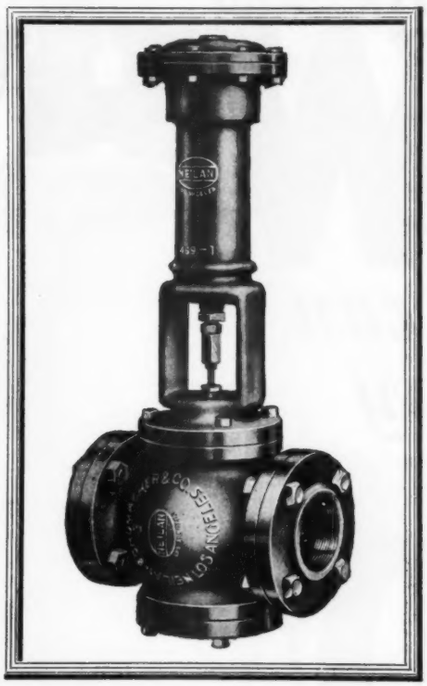
"As a result of this work," said Dr. Thomas McElroy, chief surgeon of the health department, "we have reduced our sick rate from some 10 days per employe to two and one-half days per employe, and feel that eventually we will increase the length of productivity of all employes of this company."

Oil Companies Co-operate

In the Salt Creek Field of Wyoming four oil companies operated a 20-bed hospital jointly, with the Carter Oil Co. in immediate charge. With decline in production and consequent reduction in the number of men employed, this hospital was closed last August.

Other forms of co-operative action appear among oil companies in the effort to preserve good health conditions. For instance, in appointing physicians to serve as "company doctors" near fields where it is operating the Skelly Oil Co., wherever possible, chooses the same physician that has been selected by the Carter Oil Co. for similar service. In the Texas Panhandle Field, near Borger, the Skelly company has installed a modern water supply and a system of sani-

Coming out of the Hole



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tation in its camp and all farm foremen are provided with safety kits. C. L. Swim, with an office in the Skelly Building in Tulsa, Okla., is in charge of safety and first-aid work for the company.

The Mid Continent Petroleum Corp. divides supervision of its physical welfare work for employes between R. M. Willhour, in charge of first aid, and Elmo D. Murphey, who oversees the installation of mechanical safeguards. Dr. F. Y. Cronk of Tulsa, Okla., is consulting physician for the company and all applicants for jobs are subjected to physical examination. A well-equipped first-aid station is conducted in connection with the company's refinery in West Tulsa.

The Indian Territory Illuminating Oil Co., which has been among the leaders in medical care of its workmen, built a modern first-aid station in the Seminole Field and has one of the best camps in that area. Every major oil company has adopted safety and sanitary regulations for the protection of its employes and provided for medical and surgical care wherever possible. The systems touched upon here are believed to be representative of them all.

BUY TOWANDA PROPERTIES

Three oil properties in the heart of the famous old Towanda gusher district, 8 miles west of Eldorado, Kans., have been purchased from the Carter Oil Co. by a group of Wichita oil men, including Henry Rosenthal, George Bruce and Harry Gore. The price was $60,000. Nineteen wells with a combined daily production of approximately 125 bbls. on the Orban and Davis leases were involved. The Wichita owners are preparing to install power pumping plants.

MONOPLANE TO SAVE SHUTDOWN TIME ON OIL DRILLING RIGS

The Erle P. Halliburton Co. has purchased a Lockheed monoplane at a cost of approximately $15,000. This plane is of the cabin type and will accommodate six passengers. It is to be used in servicing the Halliburton testing device on drilling wells that are far removed from the headquarters of the company. The home port of the plane will be in Duncan, Okla., where the principal office of the Erle P. Halliburton Co. is maintained.

The purpose of the Halliburton company in purchasing this plane was to save oil operators shutdown time waiting on the testing tool to arrive to make a test. Since it costs an operator a minimum of $10 an hour for shutdown time on a rotary drilling rig it can be seen that a great saving to the operator will be effected by this modern means of transportation.

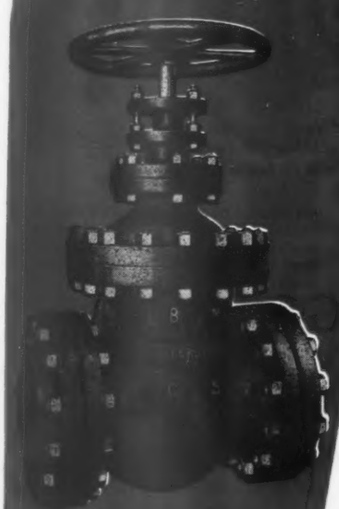
The plane has a maximum speed of 140 miles per hour and will easily cover a distance of 100 miles per hour under ordinary weather conditions. An operator who desires to have a sand tested can telephone the Duncan office and by the use of this plane a testing tool can be transported to the well in a very short time.

Mr. Halliburton and his pilot left Los Angeles in the monoplane on Monday, March 5, and arrived at Duncan the next day. They made one stop, which was at El Paso where they stayed Monday night. It required only 12 hours and 35 minutes actual flying time to cover the distance from Los Angeles to Duncan.

With this monoplane, capable of 140 miles an hour, a sand-testing tool can be transported to a well in a remote district in a very short time.

KEROTEST

KEROTEST



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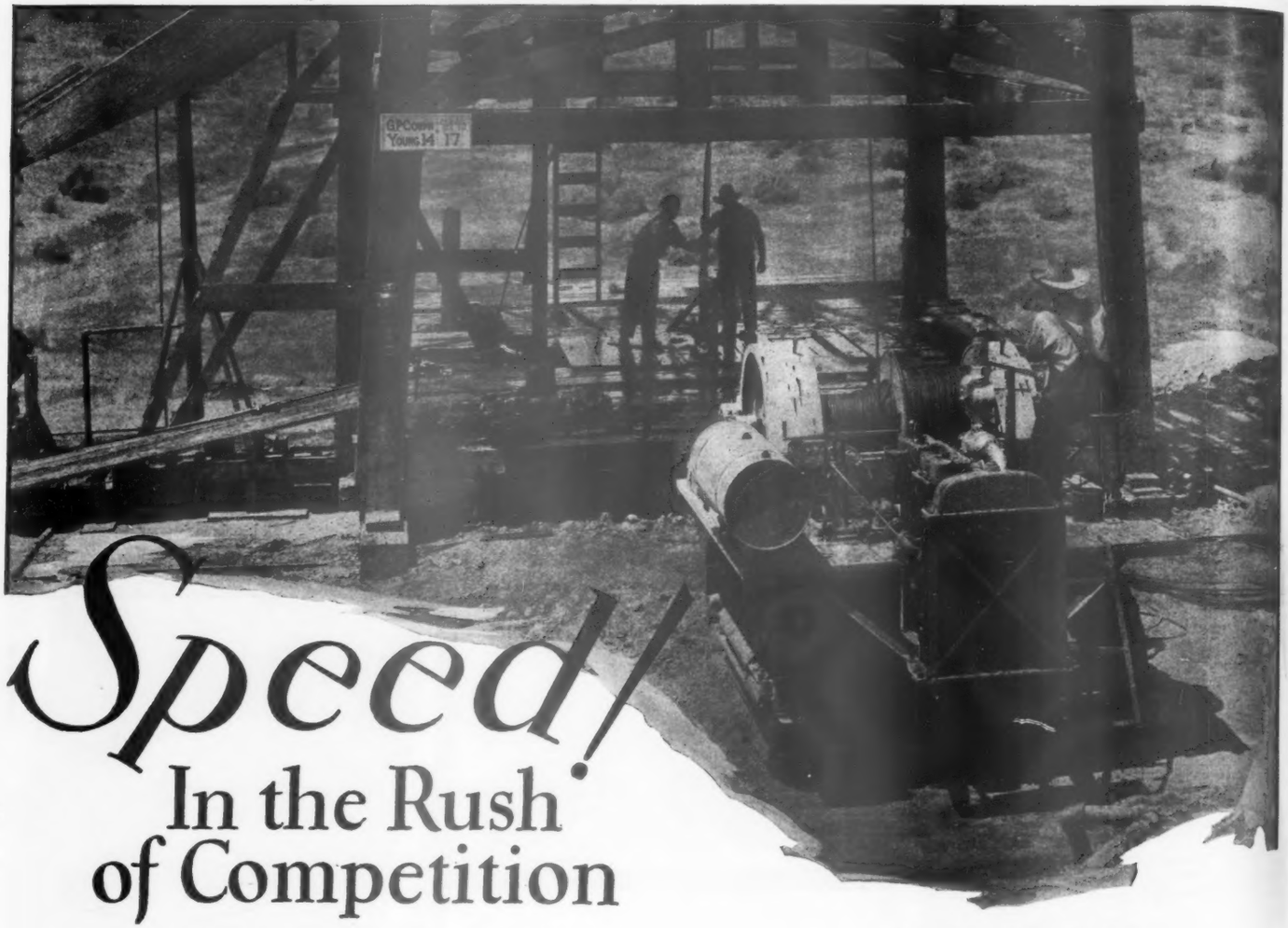

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DEVELOPMENT OF HARD FACINGS IN OIL DRILLING EQUIPMENT

By W. F. Stoody*

There have been many methods and many different types of tools used in sinking holes into the earth in the quest for oil, and although there has been no spectacular invention in tools or drilling methods that would revolutionize the industry overnight, yet there has been a constant and progressive improvement in drilling practices and in drilling tools. This is brought more forcibly to our attention when consideration is taken of the fact that it required three months to drill the Drake well to a depth of 69 feet. The Drake well in 1859 was drilled by hand, the spring pole method was used.

Long before this first official oil well was drilled, drilling tools were used for drilling salt wells, and improvements were going on then. It is recorded that a William Morris introduced the first set of jars in 1831.

In the early part of the twentieth century it was found that the hydraulic rotary system could be used to advantage when drilling in soft formation; when hard strata was encountered there was nothing to do but run in cable tools and drill by the impact or percussion method. Of course, diamond set bits or shoes could be used to penetrate the hard strata, but high initial cost of the stones and their constant loss as they were jarred loose from their settings was considered too expensive for the results obtained.

W. F. Stoody

The inception and practical use of the rock bit made it possible economically to drill hard formation by the rotary process.

Methods in Drilling

In all the various methods and tools used in drilling, it can be stated that the formation is actually penetrated by one of two methods or a combination of the two. This is by the percussion or impact method, and by the scraping or shearing method, or by a combination of the two. In the early stages of drilling a long chisel pointed bar of iron or steel, suspended by a rope, was raised and allowed to drop; the impact caused the chisel point to penetrate the formation, even when the formation was harder than the tool itself. Were the great pressure attained by the impact applied slowly, and the formation hard, no penetration could be attained. To make progress it was necessary to apply suddenly a tremendous pressure to a small area.

The rotary rock bit, due to its peculiar and novel construction, accomplished this very thing. When a rock bit is rotated the weight of the drill stem is shifted progressively from one pointed tooth to another, and its action in effect is identical with the percussion method of drilling.

Probably the fishtail was the earliest type bit used in rotary drilling, and although the conventional tempered bit was limited to drilling formation that was loose or strata that was softer than the bit itself, recent developments have made it possible to use a bit of this type in very hard formation.

Fishtails and other bits such as W.K.W., Alco, Forrow, and the different core shoes, cut with a scraping or shearing action. The disc bits, and especially the marcell and toothed discs, and also the Zublin type bits, make use of both the percussion and scraping actions. As was stated before, it is possible by the percussion method to drill in formation that is actually harder than the tool itself, although drilling speed in footage obtained is slow.

A fishtail or similar bit cutting by the scraping or shearing method is limited to formations softer than the tool itself unless these hard formations are of small bulk and bonded together by a softer formation.

An Illustration

A very good illustration of this would be an aluminus grinding wheel which is artificial corundum having a hardness of nine on Mohs scale. These wheels are made of small grains of aluminus oxide cemented together with a clay which is later vitrified. An ordinary tempered fishtail having a hardness of six, which is one number less than that of quartz, will drill into the grinding wheel, the fishtail does not cut the aluminum oxide but it does cut the clay that bonds the aluminum oxide grain together.

This fishtail would not make even a scratch on a solid piece of corundum or a piece of petrified wood from the Arizona forest, as they both have a hardness of nine and the fishtail is only six. If you have a solid formation having a hardness of more than five and wish to drill into it using the scraping or shearing method, then you must certainly use a material on your bit that is considerably harder than five, otherwise it would be like trying to drill a hole into a piece of steel with an augur made of lead. For the purpose of this article from now on a fishtail bit will be mentioned and used as a means of demonstrating the value of hard facing materials. Although the writer wants to go on record as stating that in his opinion there are many bits on the market today that operate by the scraping or shearing action that have it all over the fishtail.

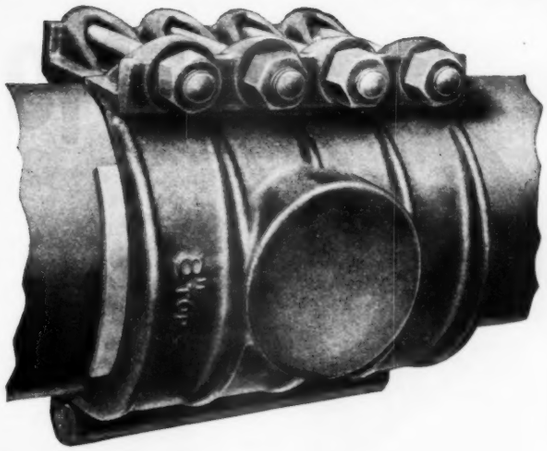
Two Points

It is well at this time to mention at least two points that are amply covered by these new type bits. The first point to be considered is that as a fishtail is a flat thin blade it will jump from one side of the hole to the other and will not describe a true circle. If a fishtail is run after taking a core in hard formation, the fishtail will sometimes follow around the spike left by the core bit, edgewise, something like the hunter walking around the tree looking for the squirrel that always keeps on the opposite side. The new type bits are constructed with such an elongated circumferential area that this is prevented.

Another point to be considered is that a 12-inch fishtail has four times as much material to remove on its extreme diameter as a 6-inch fishtail on its extreme diameter. Thus the natural tendency of any fishtail is to wear diamond pointed, and the clearance of the bit is the first part of it that is destroyed.

The modern bits have additional cutting surfaces on the circumferential edge that will remove this additional material in the same ratio that the part of the bit nearer the center removes its allotted formation. However, the fishtail has been with us since the inception of rotary drilling and although it has lost favor many times it has always come back into

*President of the Stoody Company. Before California group of American Petroleum Institute (Development and Production Engineering Section).



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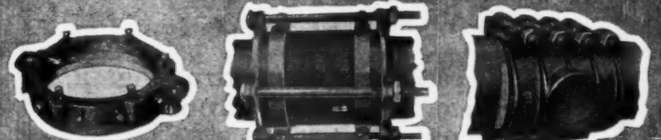

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use and it promises to be with us for many years to come.

The simplicity of the fishtail is apparent, the working parts are all one, nothing to leave off when assembling.

The first hard-faced discs and fishtails were run by A. J. Graham of the B.G.T. Oil Co. at Santa Fe Springs in February, 1922. The second one of our customers was Al Johnson of the Federal Drilling Co. It tooks a lot of nerve at that time to run any welded apparatus in a hole several thousand feet deep and "Lady Luck" most certainly invited the three of us to participate in her gratuity.

Process of Hard Facing

The process of hard facing at that time consisted of laying the bit down upon a copper form and welding it out to size by depositing with the electric arc a bead of oil tempered spring steel wire obtained by express shipment from E. K. Morris Co. of Cincinnati, Ohio, as there was no high carbon rod on the Coast at that time. After completing the welding operation and while the tool was at a red heat, water was poured on the cutting face which made the facing of the tool hard and it gradually became softer and tougher toward the center and back edge of the bit. To say that this kind of hard facing was better than the original bit is drawing upon the imagination considerably; however, it was cheaper and if it wasn't any better than the new bit, it at least was satisfactory at that time.

In the latter part of 1922 experiments were tried along the lines that hard-facing is known today; that is, a bit was built up to original size with a high carbon rod, this added material was not chilled or tempered as it was desired to leave the bit and the added material in as tough a condition as possible.

Next a high carbon rod that was coated with a mixture of tungsten, manganese, chromium and carbon was applied in a bead on the face or cutting side of the bit. These alloys caused this last deposited bead to be inherently hard, that is, it became hard without being chilled, due to the uneven coating on the rod, and also to the fact that the tendency of the arc was to cause the alloys to fly off in all directions from the end of the rod, the hardness of the deposited metal was uneven, that is, there were spots too hard to be filed and other spots that could be filed easily.

Use of Alloys

To overcome this, these alloys were placed inside a sheath and the sheath rolled and formed into a tube. This was the first type of rod marketed and used as a hard facing rod, and although it served its purpose well, there was a demand for a facing material that was harder, in order that harder formation could be penetrated with this type of bit.

It was found that when larger quantities of alloy were added to the hollow rod to obtain a harder deposit, that a complete amalgamation or mixture of the steel sheath and alloy was not obtained in the short period of time that they were held in a molten condition by the welding process. About the maximum limit of alloy that could be completely alloyed by this process was 12 per cent in the deposited metal, and although it was self-hardening, the hardness was not all that was desired. The next type of hard-facing rod placed on the market was a cast rod consisting chiefly of alloys. These rods were also self-hardening, and their value has been appreciated by the entire industry.

It may be well to mention that the requirements of a good hard-facing rod are:

First. It should be applicable either by the electric or oxy-acetylene process.

Second. It should perfectly amalgamate or weld to the parent metal.

Third. It should have a Rockwell hardness of 56-C to 58-C and still retain a cohesiveness of 100.

Fourth. Its hardness should be inherent.

Fifth. It should retain its hardness at a red heat.

Principle Involved

To get a correct idea of the principle involved in hard facing, it must be borne in mind that any cutting tool must have clearance. This is very apparent in machining steel as the inspection of a twist drill will show a diametrically extended edge or lip. A milling cutter will also show that the widest point is at the cutting edge, and even a hand saw for cutting soft wood must have set, that is, the teeth are alternately bent right and left, so that the cut will be wide enough for the saw to pass through without binding. Burn a drill and destroy the clearance or wear off the clearance on the sides of a milling cutter or take the set out of a saw, and your cutting progress stops immediately. Although not so pronounced a formation cutting tool is identical in principle and effect, a drilling tool may be so dressed that it will have clearance for a short time only, as the formation will rapidly wear it off.

In hard-facing the tool is made up of two metals, one having a low and the other a high degree of hardness. The hard material is placed on the face of the tool in the direction of rotation and due to its extreme hardness and abrasive resistance it does not wear off as rapidly as the softer metal back of it; thus, when a tool is hard-faced it always retains its bottom clearance until it is worn out.

Were the two metals nearly the same hardness and having the same abrasive resistance there would be practically no undercut or clearance and certainly no advantage. The greater the difference in the hardness and the abrasive resistance of the two metals the greater will be the clearance and self-sharpening effect.

Although hard-facing came to be universally used wherever they drill for oil, there was a demand for a material that would cut the harder formation by the scraping or shearing method. Even in fields where the drilling is comparatively easy, hard streaks are encountered from the grass roots on down, and it is a source of annoyance besides the expense to have bits on hand for hard drilling and bits for the softer drilling. It many times happens that a soft formation is struck and the going good, and an ordinary hard-faced bit run in the hole only to find after making a few feet that the formation is harder than the tool, and it is again necessary to pull out and run in a bit that is suited for the hard formation even when this hard streak is only several feet thick.

Use of Borium

To fill this need, that is, to make possible for an ordinary fishtail to cut through this hard formation, it was necessary to have a material that was much harder than the formation encountered, and Borium was placed on the market in March, 1927.

Borium may be described as a metal and is the hardest material known with the exception of a diamond, and, like the diamond, it does not owe its hardness to any alloying elements, but to its physical character that is attained by intense heat and high pressure.

The natural corundum is 9 on Mohs scale of hardness and it is claimed that Silicon carbide crystals are 9½, although no reason is given for arriving at this exact figure. Borium will scratch silicon carbide crystals easily, and with this extreme hardness it is more like tempered steel in toughness.

Due to limited production and lack of complete data on the best methods of application, Borium was not in general use in California until the fall of 1927.

Some of the first methods of applying Borium to bits was to braze small pieces to the face or cutting side of the bit. Some of these bits made phenomenal footage. Others did not do as well as an ordinary hard-faced bit, and it was found that the circulation and sharp sand would rapidly cut away the soft bronze and allow the Borium to fall off. As soon as this was discovered the Borium was welded into place with Stoodite or similar hard-facing rods, and, although this method was highly successful and gave excellent results, it was noted that the small pieces of Borium embedded in the hard-facing had a tendency to shatter. To overcome this the Borium fragments are first welded to the bit with a high carbon or a mild steel rod. The Borium does not melt, but the welding rod melts and runs around the Borium and welds it to the bit; thus each

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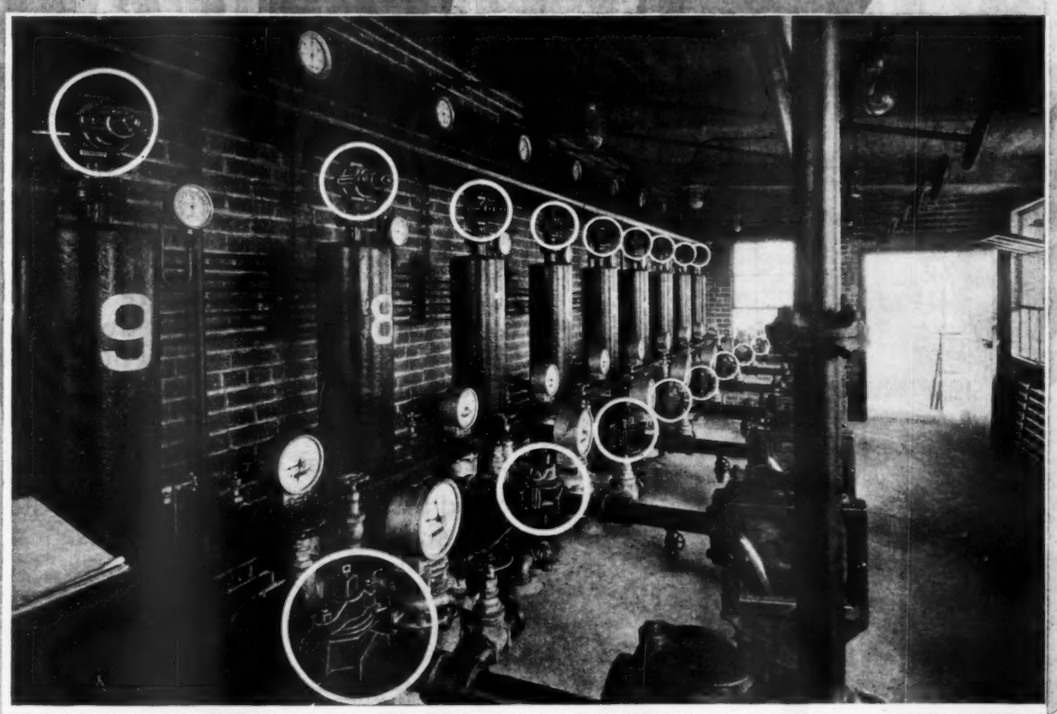

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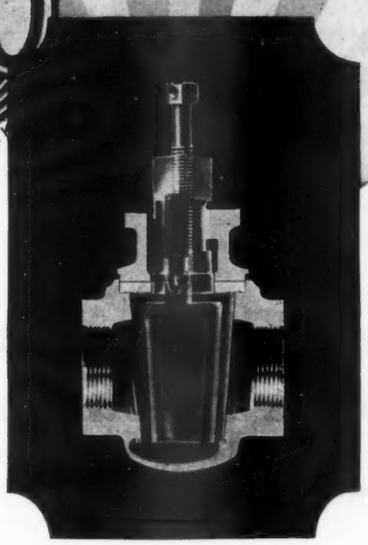

The illustration shows a typical installation of these *lubricated* Valves in the plant of a leading oil company. During the course of a month these valves are turned on and off hundreds of times—without fear of any leaks whatsoever—through the valves or to the outside. The plug being lubricated under pressure will not leak, the lubricant preventing the liquid or gas from passing along the surface of the plug.

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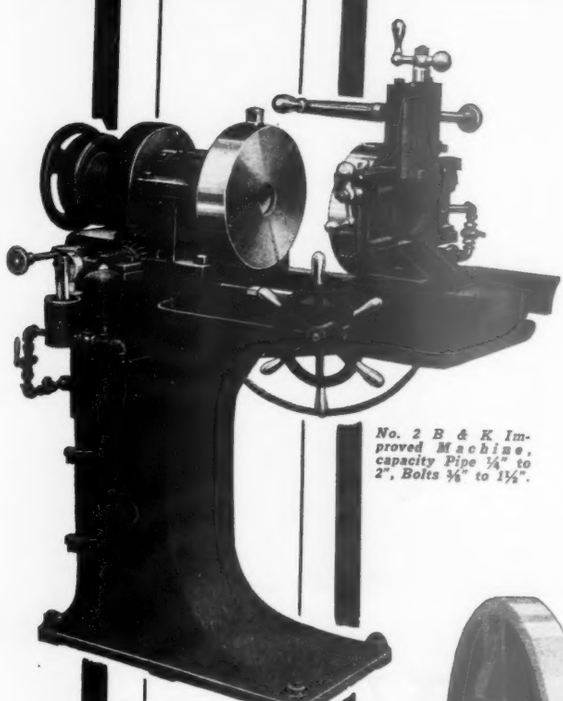

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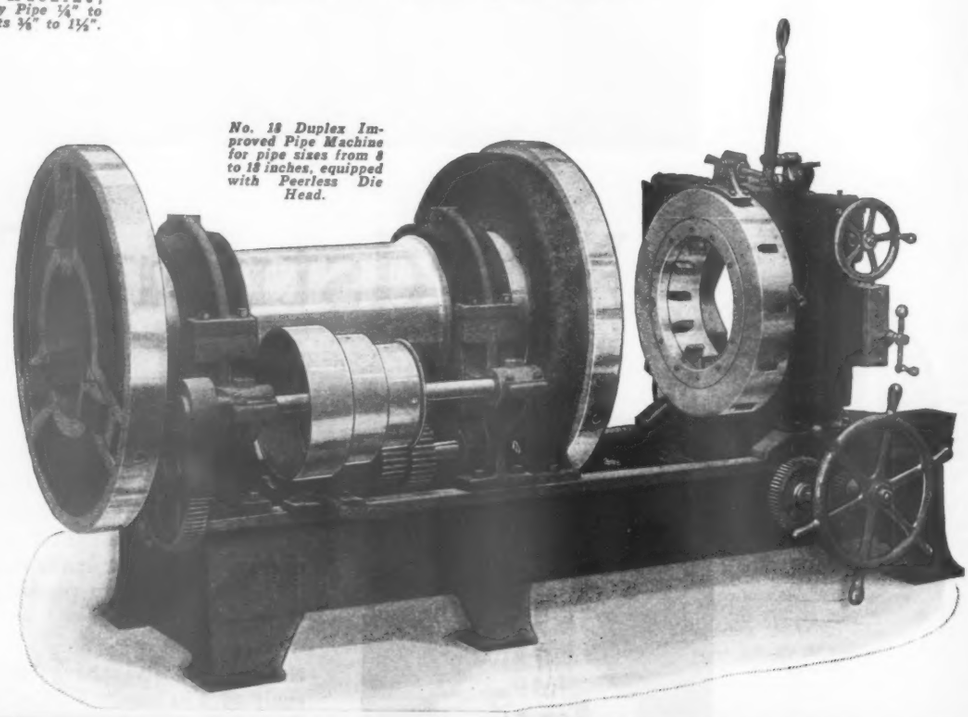

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piece of Borium that is welded to the bit has a thin soft jacket completely surrounding it, which acts as a cushion when the Borium is subjected to shocks and jars encountered in drilling. After the Borium is all welded onto the bit with the high carbon or mild steel rod, it is covered up and the bit is faced with Stoodite or other hard-facing rod.

The oxy-acetylene torch is always used in applying the Borium to the bit, and for facing afterwards. The heat of the torch is not sufficient to change the physical character of Borium; the electric arc, however, will cause it to decompose and revert to an amorphous state.

Following is a copy of a report turned in to our office by A. J. Graham, field observer:

Compiled report of my personal observation of 150 rotary bits of different sizes and different types set with Borium which shows the actual footage drilled with each group of the different sizes and the average drilled with each bit. I will not add the nature of the formation drilled with these bits, as previous reports contain this detailed data, but will state that the formation was of every kind encountered in the Signal Hill, Alametas Heights, Brea Canyon and Richfield districts.

Size of bit—	No. of Bits	Total Footage	Average Footage	Average Cost per Bit
6¾ to 6⅞ fishtail	40	1,689	42.22	32.50
7⅞ to 7⅞ fishtail	40	1,831	45.77	40.00
9⅞ to 9⅞ fishtail	36	1,476	41.00	47.50
12 to 12-inch fishtail	12	634	48.80	55.00
14¾ to 14-inch fishtail	16	1,481	92.90	85.00
11-inch discs for 15-inch hole	5 sets	601	120.00	85.00
	150	7,714	51.40	59.16

Total tool cost for drilling 7,714 feet of hole, $8,874.
Average cost per foot of hole drilled, $1.17.

Art White, superintendent of the Brea Canyon Oil Co., has granted us permission to state that in drilling well No. 43 at Brea, Calif, his average footage of hole drilled with 15-inch Borium mounted fishtails was 105 feet per bit, and his average tool cost was 81 cents per foot of hole drilled on the 15-inch size.

Below 3,555 feet the size of the hole was reduced to 9⅝ inches and the average footage per bit was 61 1-7 feet and the tool cost per foot was 77.8 cents.

A Borium mounted bit will cost about four times as much as what a hard-faced bit will cost, but the Borium bit will make about five times as much hole. The operator not only saves money by having his tool cost per foot of hole reduced, but each Borium bit saves him from four to five round trips. Below 3,000 feet this means that every Borium bit run saves one 24-hour day time lost in running in and out of the hole.

NEW HELIUM GAS PLANT FOR AMARILLO FIELD

WASHINGTON, D. C., Apr. 14.—The final closing of a contract with the Amarillo Oil Co. of Amarillo, Tex, which, it is thought, will greatly increase the available supply of helium, the rare noninflammable gas required for the operation of dirigibles, is announced by the United States Bureau of Mines. Under the terms of the contract, the bureau will undertake the extraction of the helium from natural gas from the company's leases on the Cliffside structure in Potter County, Texas, at a new helium plant to be constructed by the Government at Amarillo.

The Bureau of Mines, which has always played a prominent part in the development of helium for use in dirigibles, has had jurisdiction over production and conservation of helium for the War and Navy Departments since July 1, 1925. All of the helium produced by the Government, to date, has been extracted from gas from the Petrolia Field in Clay County, Texas, at the United States helium production plant near Fort Worth, Tex. As this source of supply is no longer capable of meeting the demands of the War and Navy Departments, the Bureau of Mines has been working toward the development of other fields.

Knowing of the Government's need for increased supplies of helium, the Amarillo Oil Co., through its president, N. K. Moody, offered to place gas from its leases on the Cliffside structure at the disposal of the Government and to provide for the disposal of the gas from which helium has been extracted. After a thorough study by the Bureau of Mines engineers of all known sources of supply of helium-bearing gas, giving consideration to the quantity of gas available, its helium content, the terms under which it could be obtained, prospective life of the supply, possibilities of disposing of residue gas and numerous other factors, the Cliffside structure was found to be the most promising field upon which a new project for augmenting the production of helium might be based; also the vicinity of Amarillo was found to be a suitable location for a helium plant.

Through co-operation of the officials of the Amarillo Oil Co., the details with regard to the gas supply and disposal of the residue gas were worked out to the Government's satisfaction. W. H. Bush, of Chicago, through his agent, James Bush of Amarillo, and Lee Bivins, and the Fuqua Land & Cattle Co. of Amarillo, fee owners of the land from which gas for the project is to be drawn, were also instrumental in working out practicable arrangements for the project.

Preparations are now being made for the erection of a helium plant near Amarillo to process gas from the Cliffside structure. The details of plant location and construction are not yet fully developed, but it is planned to develop a helium project at Amarillo which will be an important factor in national defense.

The helium will be recovered by cooling the gas to approximately 300 degrees Fahrenheit below zero, at which temperature all of the constituents of the gas, except the helium, are reduced to a liquid state. The helium will be drawn off as a gas at this low temperature and compressed into tank cars or steel cylinders for shipment to points where it will be used in lighter-than-air craft and for other purposes. The remaining liquid, consisting of the original gas minus the helium, will then be evaporated to the gaseous state, by allowing its temperature to return to normal, and will be delivered into the lines of the Amarillo Oil Co. for use in Amarillo as fuel. The heating value of the natural gas is improved by the extraction of the helium, because the helium and other inert gases removed in the plant have no fuel value.

The low temperatures to be used in the plant will be produced by the compression, cooling and subsequent expansion of gases following practices similar to those used in the Fort Worth production plant and the purification plants which have been designed and erected by Bureau of Mines engineers at Scott Field, Ill., and Lake Hurst, N. J., for the War and Navy Departments, respectively, for purification of helium after use in airships. At the minimum temperature to be used in the plant, atmospheric air is a liquid, mercury and carbon dioxide are solids, lead and copper take on properties of steel, and rubber is almost as brittle as glass.

TECHNOLOGIST EXAMINATION

WASHINGTON, D. C., Apr. 14.—The United States Civil Service Commission announces a competitive examination for junior petroleum technologists not later than April 28 to fill vacancies in the Geological Survey for duty in California, Colorado, Montana, New Mexico, Oklahoma, Utah and Wyoming, and in Washington, D. C., or in the field. The entrance salary in the District of Columbia is $1,860 a year.

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CENTRAL WEST FIELDS

(Continued from Page 66)

a location for a test on the T. E. Larkin farm, Section 8-8s-6w, about 4 miles north of Owensboro, to start drilling at once.

Illinois

Edward R. List has moved a derrick, drilling tools, equipment, 16, 12 and 10-inch pipe from Sandoval, Ill., to a location for a deep test well in the NE NW NE of Section 16-4-3e, in Jefferson County, Illinois. This test will be in Spring Garden Township, on a block of 18,000 acres of leases in a single block.

The summer will see numerous tests drilled over various counties that have never been looked upon as worth the expenditure. There are rumors that tests will be drilled along the Illinois-Indiana State line in the southern part of Cook County and in Will and Kankakee Counties as well as in the vicinity of Chicago Heights and Harvey.

Central Ohio

Five completions were reported from the Central Ohio fields, one being dry and four medium sized gas producers. In the Cleveland Field in Olmstead Township, Cuyahoga County, McGrath and others' test in the northwest corner of the Emma L. McMahon 2 acres, Lot 31, is an average gas well. John Arthur is drilling a test 195 feet from the south line of the G. Gage 47 acres, in Lot 35, 255 feet west of the township line, also a test 265 feet north of the road and 55 feet west of the township line on the W. W. Donald 24 acres, Lot 34, same township. Mr. Arthur is also drilling a test in the southwest corner of the V. H. Limpert 19 acres, Lot 5, Dover Township, same county.

In Congress Township, Wayne County, the Ohio Fuel Gas Co.'s No. 1 well, 1,320 feet from the north and west lines of the R. B. Ferguson 100 acres, Section 15, drilled in a dry hole. The Logan Gas Co.'s test on the C. W. Whitmore farm, Section 17, Cannan Township, same county, is a light gas well.

In Ashland County, Greene Township, the Ohio Fuel Gas Co. has a light gas well at a second test on the Jacob Kettering 72 acres, Section 23. Same company made a location for a test, 660 feet from the north line and 800 from the west line of the Clyde Austin 100 acres, Section 13, Orange Township, same county. Hawk and others have a good gas well at a second test on the M. A. Strine 98 acres, Section 25, Vermillion Township, same county.

KENTUCKY-TENNESSEE

(Continued from Page 66)

it at $50 per acre, which was a nice turnover, but may be a good buy at that, being so close to the good well on the C. M. Jones lease.

Doctor Brooks and others, drilling a test on the Rev. C. F. Hartford farm on the Leitchfield Road, near the Grandview School House, are getting down close to where sand should be struck, now being close to 900 feet. This well is in the vicinity of the Lewis and Jones well west of Whitesville.

Owensboro Field

The Owensboro Messenger says: "The Wood Oil Co. has developed a gas field and has submitted a proposition to the local gas company to supply it for at least 25 years. The Wood Oil Co. was one of the original organizations in this field, beginning in 1923 when there were but three wells drilling. It now has 54 producing wells. Besides its local wells the company is pumping several in the Bowling Green Field (as well as in the Glasgow Field), and a much larger lot in eastern Kentucky. With the Leeper Oil Co.'s 135 wells, Jim Ellis' 50 wells, Ohio Oil Co., Miller & Damron, Dr. L. C. Young, Imperial Oil Co., Rex-Pyramid Oil Co., Mecca Oil Co., Pennsylvania-Indiana Oil Co., Trico Oil & Gas Co., Barnard-Rial Oil Co., Lee Hohlinde, H. A. Henry, Chicago Petroleum Syndicate and others, approximately 6,000 bbls. of oil daily is being paid for at the rate of $1.33 per barrel from this field. This represents in round numbers $8,000 per day.

"A second pipe line is now being put in by J. C. Ellis at a cost of approximately $200,000. A receiving station has been built at the Glenmore Switch, east of Owensboro. Two big tanks have been built near the switch in order to load tank cars easily should the river freeze over or become too uncertain to permit oil tankers to operate between Louisville and Owensboro. Ellis expects to get this line into operation within a couple of weeks. He also has two smaller tanks for receiving stations at Taffy, the southern end of the line. These will be pumped for storage to the larger tanks east of Owensboro.

"Besides the original cost of the 600 wells in this field, approximately $3,000,000, the continual operating costs runs into thousands of dollars per month, much of which is spent in Owensboro."

March Oil Runs

A total of 548,847.81 bbls. of crude were reported run by the three pipe lines making reports from Kentucky, not including the runs of the Stoll Oil Refining Co., which is running an average of better than 12,000 bbls. monthly from the Glasgow Field of Barren County, also some oil from the Tennessee Field. Of this amount 267,240.48 bbls. were run from the eastern division and 281,607.33 bbls. from the western division. The combined runs of the three pipe line companies show an increase for March over February of 106,591.91 bbls., the largest runs from Kentucky for the past few years or since the big development in Warren and Allen Counties in the west division and the Big Sinking and the Johnson-Magoffin Counties of the eastern division.

The runs of the Cumberland Pipe Line Co. from the eastern division of Kentucky amounted to 267,240.48 bbls. The runs for the week ending March 3 were 54,305.97 bbls.; week ending March 10, 52,381.01; bbls. week ending March 17, 52,413.38 bbls.; week ending March 24, 52,424.36 bbls.; week ending March 31, 56,715.76 bbls. This is an increase over the February runs of 63,767.38 bbls.

The Illinois Pipe Line Co. handled through its western Kentucky lines a total of 226,507.41 bbls., or 32,838.50 bbls. more than in February, being the largest runs known up to this time in the western division, and will no doubt steadily increase with the active development work in Ohio, Daviess, McLean, Barren and other counties.

The Paragon Development Co. runs from Barren County during March amounted to 54,305.07 bbls. and from Cumberland, Monroe and Clinton Counties 794.85 bbls., or a total of 55,099.92 bbls., or an increase over February of 9,986.03 bbls. Barren County runs for March were the greatest in the history of the Glasgow Field, one of the oldest producing areas in the entire State.

The Paragon Development Co. ran in March from Clay County, Tennessee, fields a total of 2,993.28 bbls., and from Pickett County, 203.31 bbls, making this company's total runs from the two states for March of 58,296.51 bbls., or 10,388.72 bbls. more. than for February.

EASTERN FIELDS

(Continued from Page 64)

Newman farm. In Mannington district, Marion County, the Clifton Oil Co. is due in the sand on the O. N. Keon farm. In Cass district, Monongalia County, the Carnegie Natural Gas Co. has started to drill on the Jesse Holbert farm.

In Glenville district, Gilmer County, the Sears Oil & Gas Co. has started to drill a second test on lease No. 1 of the A. B. Campbell farm. In Grant district, Ritchie County, the Del Rio Oil Co. is moving in tools to a location on the Cornelia Storrs farm. In Murphy district, Hardman and others are rigging up on the J. Wolfe farm.

In Sheridan district, Calhoun County, Bart Crowley has started to drill on the James Bryner farm. In Center district, W. H. Bickel is drilling on the E. W. Propet farm. In Reedy district, Roane County, D. W. Law and others have part

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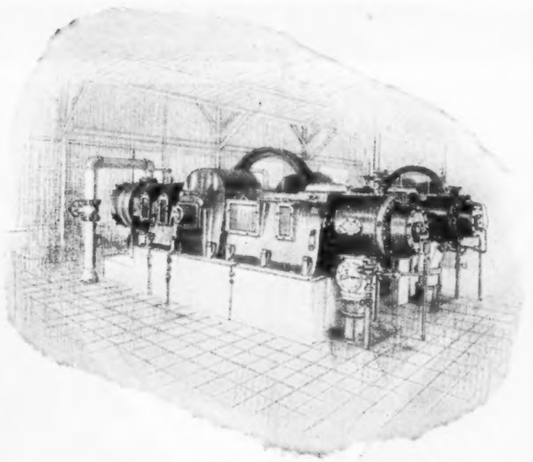

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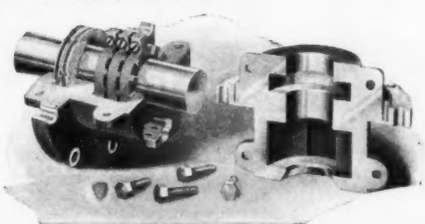

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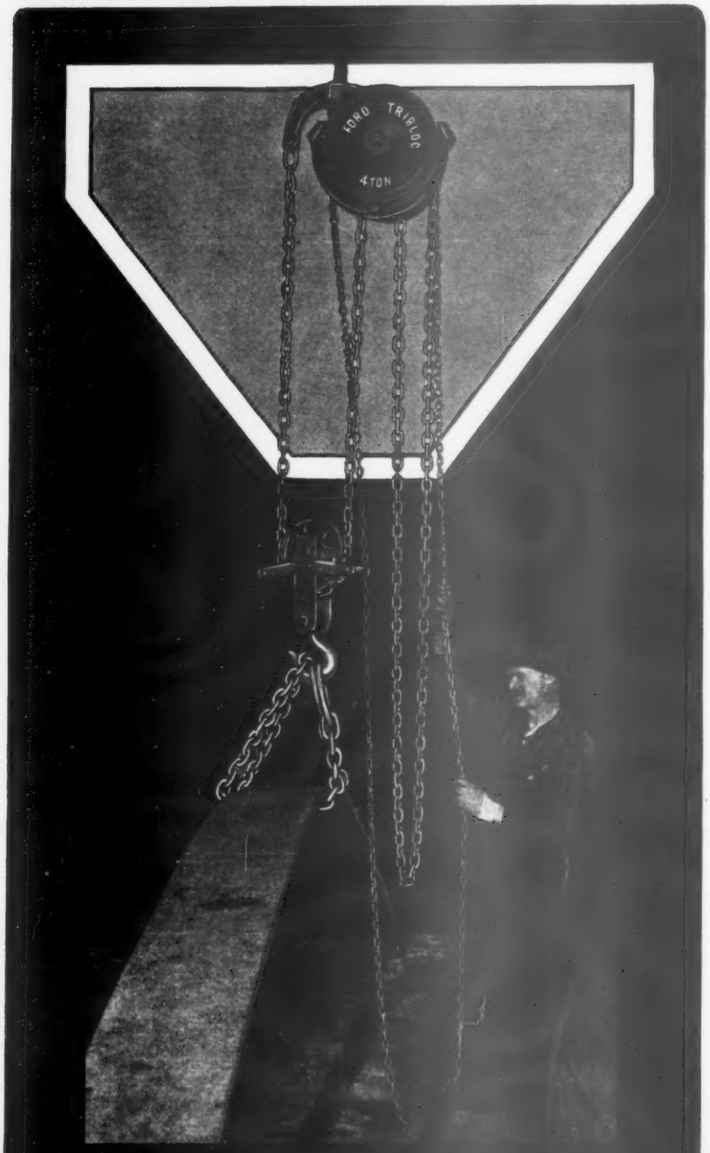

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of the rig material at a location on the George Newhart farm. In the same district, the Heck Oil Co. has started to drill on the B. A. Shaffer farm.

In Sheridan district, Calhoun County, Bart Crowley has started to drill on the James Bryner farm. In the same district, Martin Crowley has started to drill on the Pettitt-Brown farm. In Geary district, the Gerwig Oil & Gas Co. has started to drill on the M. Hardman farm.

In Carroll district, Lincoln County, Earl Cameron has made eight locations on the Golden and J. A. Stone farms. In the same district, Hobbs Brothers have started to drill on the Missouri Carpenter heirs' farm.

Gasser in Roane County

On Sugar Camp Run of Reedy Creek, Reedy district, Roane County, the Heck Oil Co. has completed in the Berea grit No. 3 on the A. D. Tallman farm. It is a gasser good for 1,000,000 feet.

Southwest Pennsylvania

In Moon Township, Allegheny County, George Herry & Co. have drilled down to the Fourth sand a test on the Steinmetz farm. It is a fair gasser, showing a little oil. In Ross Township, Ward & Co. are due in the sand at a test on the Kuhn farm. In Pine Township, Smith & Co. are drilling a second test on the Bloom farm.

Steel Maintaining Activity Quite Well; Purpose of Advance

By B. E. V. Luty

PITTSBURGH, Pa., Apr. 16.—The character and spirit of the advance in standard pipe prices is now disclosed. The advance as made by the mills was reported one week ago, taking the form of dropping one 5 per cent from the preferentials or trimmings. It includes line pipe but otherwise does not affect oil country tubular goods, which may be advanced later, though apparently not in the immediate future.

According to the strong testimony of the mills, the advance was made for the purpose of securing more money for pipe, not for the purpose of driving in orders and contracts, as has been the case, more or less, with some of the finished steel price advances of the past few months. The mills making those advances did not admit as much, but in the case of sheets in particular it turned out in the long run that buyers had been given ample opportunity to cover, The pipe mills assert that the steel industry has not been making anything like adequate profits and really needs higher prices.

The regular practice, in this advance, was to cover buyers for the month of April at old prices, orders to be placed at once and specifications to be furnished within five days, for shipment at mill convenience, which would mean that mills could clear up orders at old prices by the end of April. Some of the smaller pipe mills, however, may have made some contracts for 60 days, i.e., shipment in April or May. This would be regarded by the large mills as equivalent to shading prices.

Another object of the advance was to revise the lists of buyers receiving the various preferences, some smaller buyers having got into classifications receiving greater preference than mills think they should have. The regular price now, to ordinary consumer buyers, is card discount plus 5 per cent. Large distributors receive trimmings beyond this basis. The preceding price, comparable with this price, was card discount plus two fives.

Pipe buying does not seem to have increased greatly by reason of the advance, but there has been some increase, and there would be a natural increase at this time of year, the usual seasonal increase. Demand for standard pipe has been quite fair since the first of the year, but little if at all below that in the same period of last year, and only slightly less than that of two years ago.

Demand for oil country goods, on the other hand, has been light.

Pipe mills are estimated to be operating at fully 60 per cent, representing a slight increase in the past fortnight. They are doing scarcely as well as this date last year.

No important line pipe business has been closed in the past couple of weeks. Various large natural gas line projects are still under consideration. The Amarillo-Kansas City line, which will require 100,000 to 125,000 net tons for main line, feeders and branch lines, is considered the most promising. Recently the contract for laying the pipe was let to Smith Brothers, but this was an engineering proposition and does not absolutely prove that the pipe order will be placed and the line laid.

The steel industry as a whole maintains its activity quite well, there being little, if any, decrease in the rate of steel production from that of March, which month has for four successive years been the peak month of the year. Last month's production of Bessemer and open-hearth steel ignots, as officially reported, was 4,507,520 gross tons, this being 3.2 per cent above the February rate and .6 per cent under the rate of March, 1927, the record high. Production in the first quarter of the year was 2 per cent over that in the first quarter of last year, after deducting an allowance for the extra working day this year.

The Steel corporation's unfilled obligations decreased 62,983 tons in March, after five months of substantial increases. The showing is a very good one, for in both 1927 and 1926 decreases began in January. Unfilled obligations April 1 were 4,335,206 tons, or 782,066 tons above those of one year ago.

DECISION BY JUNE 30 ON TEXAS OIL PERMITS

AUSTIN, Tex., Apr. 14.—It is understood at the capitol that the Supreme Court is working on the mineral permit questions with the view of deciding them before adjourning June 30 for the summer recess.

Three groups of the cases are under submission and all will be decided at one time, it is expected, as they are closely related.

The first group presents the validity of contracts made by a county whereby oil and gas is prospected for on county-owned school lands on a royalty basis. The second group covers the cases involving specifically the constitutionality of the University of Texas mineral leasing statute on grounds that attack the validity of the school land and asylum land permit laws. These involve leases worth millions.

The third group, also involving large sums, is that attacking the validity of the act relinquishing fifteen-sixteenths of the oil and gas to purchasers of school land.

PURCHASING AGENTS ELECT

Frank H. Dunn of the H. F. Wilcox Oil & Gas Co. was elected president of the Purchasing Agents Association of Tulsa at the annual meeting. H. E. Harvey, Josey Oil Co., is the new vice president; O. E. McClatchey of Barnsdall Oil Co., second vice president, and H. M. Cosgrove was re-elected secretary-treasurer. George C. Pohler of the Mid-Continent Petroleum Corp. was named as national director succeeding W. H. O'Connor, Marland companies, resigned; and G. A. Thompson, retiring president, was named for the two-year term. A large delegation will attend the National Association of Purchasing Agens convention May 27 to 31 at Kansas City, Mo.

BRENHAM PIPE LINE

The Chamber of Commerce of Brenham, Tex., is surveying a line for a pipe line from the railroad at Brenham to the shallow field 9 miles from that city. The chamber proposes to make the survey and secure the right of way and interests at Corsicana are said to have agreed to lay the line and run the oil. The field is a small one at present without pipe-line outlet.

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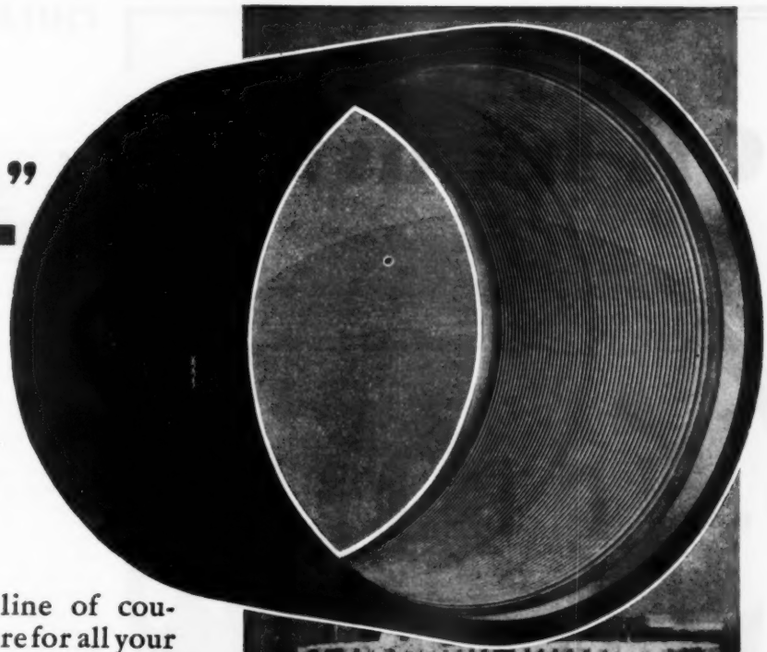

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CHILEAN GOVERNMENT ASKS BIDS ON DRILLING IN CERTAIN AREAS

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 16.—The government of Chile wishes to develop its own oil fields and has authorized preliminary drilling of test wells to determine the extent of petroleum deposits in that country.

In order to have this drilling done in the absence of a native industry to call upon, the government is sending out an invitation through its ambassadors abroad asking for bids for drilling.

This drilling is to be done in Magallanes and Tierra del Fuego provinces which are in the southern part of Chile. The test wells are to be drilled to a depth of 600 to 1,200 meters (2,000 to 4,000 feet), some of them extending to 1,500 meters. The total depth of all the wells to be contracted for will be from 50,000 to 65,000 feet.

Generally the entire range where drilling will take place will be south and north of the 47-degree of latitude. The Government, through its ambassadors will furnish information concerning the climate, transportation and general conditions that would be met by a contractor operating in Chile. The climate of this region is almost the same as that of similar latitude in the northern hemisphere. The population is scant and scattered and communication in bad weather is maintained with great difficulty.

The government will aid in furnishing supplies for the camps of the contractors if desired.

These drilling contracts are authorized by a law passed by the National Congress of Chile attested at Santiago, February 15, 1928, which suspends the operation of the law authorizing the President of the Republic to grant permits to carry on exploration and exploitation for petroleum and authorizes the President to invest up to 10,000,000 pesos, "to carry out investigations, explorations, borings and any work to establish the existence of petroleum in the country and the area of petroleum fields."

This law was to govern from the date of its publication in the "Diario Official" which was on February 16, 1928.

As in the case of practically all laws in Latin-American countries, the President is empowered to interpret this measure prior to its execution. Accordingly the government has issued the following proclamation which is the complete information upon which contractors are to base their bids:

Data for Contractors

"The government desires to find out whether oil deposits exist on the national soil. The Magallanes territory will be drilled for oil. For this purpose, the Ministry of the Treasury, through the Ministry of Foreign Affairs, has sent to our foreign representatives the conditions for performing this work.

"Don Pablo Remirez, the Minstro de Hacienda (Minister of the Treasury), through the Ministry of Foreign Affairs, has notified the diplomatic representatives of Germany, Argentina, Belgium, the United States, France, England, Mexico, Poland and Rumania of the conditions for exploring for oil in Magallanes, so that these representatives may receive bids from firms specializing in this kind of work.

"These conditions are reproduced below.

"Drilling concerns located in this country may send their bids to the Minister of Hacienda before June 15, this year.

"The Supreme Government of Chile, for the purpose of determining whether there is oil in the country, intends to have a number of wells drilled, the location and depth of which shall be determined by persons specializing in this work. The depth of these wells, according to studies, shall vary between 600 and 1,200, but in some cases it may reach 1,500 meters. A total length of from 15,000 to 20,000 meters will be drilled.

"The drilling shall be done in the southern part of Chile, north and south of parallel 47. The first wells shall be drilled in the Magallanes territory between parallels 52 and 55.

"The climate of the Magallanes region is relatively mild during the last and first months of the year, that is, very much like that of the European countries located in the same latitude north.

"The population is rather scattered and land communications are a little difficult during the bad season, but if the necessary precautions are taken, with the assistance of the government, the camps of the drilling parties can be conveniently established and equipped and the work can be continuous throughout the year, as in the same latitudes in the northern hemisphere. The same may be said of the region to the north between parallels 47 and 41.

"The city of Punta Arenas (Magallanes), the capital of the territory, is located at the Strait of Magallanes. It has steamship connection with Valparaiso and Buenos Aires. Some vessels of the Pacific Steam Navigation Co. still make the trip occasionally from Europe to Valparaiso through the Strait of Magallanes.

"Cargoes from Europe, machinery, pipes, etc., and the crews can easily reach Punta Arenas by way of the Panama Canal; Valparaiso, either by way of Buenos Aires, transshipping in Valparaiso or in Buenos Aires, and in some cases directly by the steamers of the Pacific Steam Navigation Co.

"The unloading takes place at Punta Arenas, where there are good wharfs.

"Punta Arenas is an important city to which all classes of commodities are shipped.

Aid from Government

"As soon as the unloading is completed at Punta Arenas, the Government of Chili will promptly transport the personnel, and the drilling and camping equipment, as well as all provisions required, to the place where the work is to be performed.

"By means of special agreements, the government may also take charge of furnishing the provisions needed for the exploration work.

"According to geological studies and the results of drilling work prior to this date, the geological formation consists of Tertiary strata composed of sandy sediments, layers of fossil oysters, mantles of coal, conglomerations of quartz or igneous rocks, marls, etc., and of secondary chalky soils consisting of sandy sediments with or without concretions of lime, lime and marl, etc. The Tertiary formation is sometimes covered with modern (glacial) soils, which have blocks of stone, boulders torn from the walls of the sea of ice from which they originated.

"All these layers are of average hardness and can easily be pierced by rotary movement (the conglomerates by percussion), as was demonstrated by previous drilling work in the territory of Magallanes.

"The concern interested must indicate in its bids the price per running meter for drillings to depths of from 0 to 900 meters; 0 to 1,100 meters; 0 to 1,300 meters; and 0 to 1,500 meters; or from sections from 0 to 700 meters; 700 to 900 meters; 900 to 1,100 meters; 1,100 to 1,300 meters and 1,300 to 1,500 meters and the supplementary price per running meter of core.

"(b) The approximate time required for drilling.

"(c) Conditions of payment.

"(d) The number of wells it is intended to drill.

"(e) The total number of tons of the machinery, pipes, accessories, etc.

"(f) The weight and dimensions of the most important parts.

"(g) The weight in tons of the ma-

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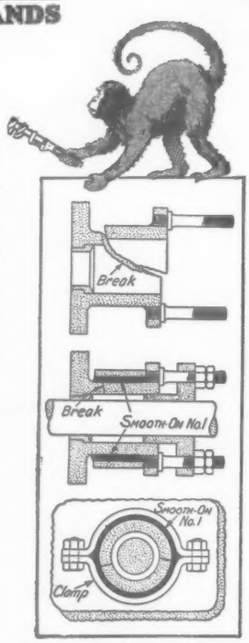

A SINGLE-ACTING ammonia compressor in a Washington refrigerating plant carries low pressure in the crank case. In tightening the packing in the stuffing box of the crank shaft bearing, an unskilled attendant tried to force the gland when it had entered at one side only. One of the studs and a piece of the box cracked off. (See sketch.)

For the repair, a circular clamp was made as shown, the broken piece and stud were carefully fitted back, and SMOOTH-ON No. 1 was tamped into the annular space between gland and clamp. After the repair had stood over night for the SMOOTH-ON to harden and expand, the box was packed, the gland set and the compressor started. The repair has now been doing perfect work for over three years.

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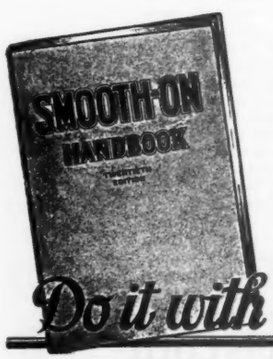

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terial to be used for the camp of the personnel.

"The contractor should carefully keep in a closed shed the cores turned over to him so that he can make up a geological table showing the location of the cores removed, as to their thickness, and the kind of soil encountered.

"The location and depth of the wells shall be determined by an official appointed by the Ministerio de Hacienda.

"The bidder must guarantee that he will drill each well to the depth indicated.

"If the drilling is not completed, and no permit to stop work has been obtained from the official supervising the drilling, or an order from him to that effect, there shall be assessed a fine established in the final contract.

"As a guarantee that the work was properly performed at the time it was paid for, 10 per cent of the amount of the payment, for each well drilled, shall be withheld from the contractor. As each well is received, this guarantee shall be returned to him without interest.

"The official in charge of the drilling, may order the work stopped before the established depth, in the event there is no hope of finding petroleum naphtha, or for any other reason he deems sufficient for this action.

"In the above case, the contractor shall be paid for the number of meters drilled in proportion to the total depth specified for this drilling.

"All transportation costs, insurance of the material and the personnel, as far as Punta Arenas, including the unloading expenses, shall be for the account of the contractor.

"Additional transportation by land and sea of the material and personnel up to the place where the drilling is to be performed shall be for the account of the Ministerio of Hacienda.

"The Ministerio of Hacienda shall furnish the fuel and water needed for the work and the personnel.

"The Ministerio of Hacienda shall transport at its own expense the foodstuffs for the use of the drilling gangs from the place where they are secured to the wells.

"The wells must have their pipes arranged in such a way that the oil cannot filter into the permeable soils therein and must be equipped with a cap to avoid any losses if the oil should gush out of the hole and to enable it to flow off as desired; in other words, the work must be performed according to all technical principles.

"In other cases, the wells must be shut off so that no foreign bodies may fall into them.

"No bid shall be obligatory either on the part of the bidder or the government of Chile until it has been ratified by a duly executed contract. The bids are intended to serve as a basis for drawing up the contract.

"At the time the contract is signed, the contractor must guarantee its fulfillment by a deposit of 5 per cent of the total value of the said contract in favor of the Ministerio de Hacienda, in the manner indicated therefore. This guarantee shall not bear interest and shall be returned when the entire work is definitely received.

"The bidder may propose other stipulations than specified or modifications thereof, which shall have no force until approved by the Ministerio de Hacienda.

"The bids must be sent in due time to respective Legations or Consulates of Chile, so they can be forwarded by the representatives of the nation in foreign countries to the Ministerio de Hacienda not later than July 31, of this year, and studied and acted on by interested parties.

"The final contracts shall contain a clause expressly renouncing the rights to all diplomatic intervention, and that, in cases of difficulties, recourse shall only be had to the jurisdiction of the Chilean tribunals."

J. A. KELLOGG DIES

James A. Kellogg, retired telegraph lineman for the South West Pennsylvania Pipe Line Co., died after undergoing an operation in a hospital in Tampa, Fla. Mr. Kellogg was in his seventy-fourth year.

AMERICAN DESCRIBES RUSSIAN OIL PROGRESS

The Russian Oil Syndicate is making notable progress in expanding its producing and export facilities, and is building a great terminal at the port of Tuapse, according to a wireless dispatch to the New York Times from Moscow, quoting Stephen Brooks, president of the Brooks Engineering Corp., oil field equipment, Los Angeles. The dispatch follows:

An interesting sidelight on the Anglo-American oil war is given by an American industrial, Stephen Brooks, president of the Brooks Engineering Corp. of Los Angeles, manufacturing oil field equipment, who has just returned from a two months' tour of the Caucasian fields.

Mr. Brooks was particularly impressed by the new field of the Grozneft (Grozny Oil Trust), which he said was now producing 100,000 bbls. a day of high-quality oil.

Under the efficient management of M. Oparin and M. Akerman, both of whom spent a considerable period in the United States studying the latest American methods, the Grozny Field is exploited in model fashion, with wells so spaced as to give the maximum results at lowest cost. All this post-revolution development is on former Crown land.

The chief feature of the Grozny project is a new 10-inch line to pump crude oil 350 kilometers to the port of Tuapse, where work is in progress which by the end of the year will make it, in Mr. Brooks' opinion, the finest refinery and export terminal in the world. One-third of the pipe lines has been laid under the supervision of an American expert, J. I. Allen of Los Angeles, who spent the winter training 130 Russian engineers to complete the welding of the rest of the pipe already strung across country as soon as the weather permits.

The refinery building at Tuapse will have a daily output of 40,000 bbls. and the terminal will be able to load tankers from each unit at the rate of 10,000 bbls. hourly.

The winding river is being straightened down a mile long valley and solid stone houses to accommodate 240 families are already scattered artistically over the hillside. Concrete roads are building and the foundation of the refinery, which will be be accompanied by a complete machine plant, foundry, storage tanks, etc., has been laid.

"During 10 months since the work began," said Mr. Brooks, "the rate of progress and the scope and disposition of the plant compare more than favorably with anything I have seen in America."

Mr. Brooks found less rapid progress at Baku, but a new pipe line for crude oil is being built to the Port of Batoum, doubling the present 6-inch line, which only pumps kerosene.

MICHIGAN WILDCATS

(Continued from Page 64)

have a rig up for a test to the south of Manchester and in the southwestern part of the county, in the Irish Hills area, and east and a little south of the 2,000-foot hole drilled on the Silvers land at Napoleon, something like 20 miles apart.

Alpena County—William Bradley and others are shut down at a test west of Alpena, in the northeastern part of the State.

Ottawa County—Bullock and others have started spudding at a test northeast of New Holland in the western central part of the county and south of the Muskegon Field.

Isabelle County—J. & S. Development Co. staked a location for a test in Section 12, Chippewa Township, of this county.

Saginaw County—Jack Hendricks and others are shut down at their test on the George Harris farm, northwest of Chesaning, in the southwestern part of the county.

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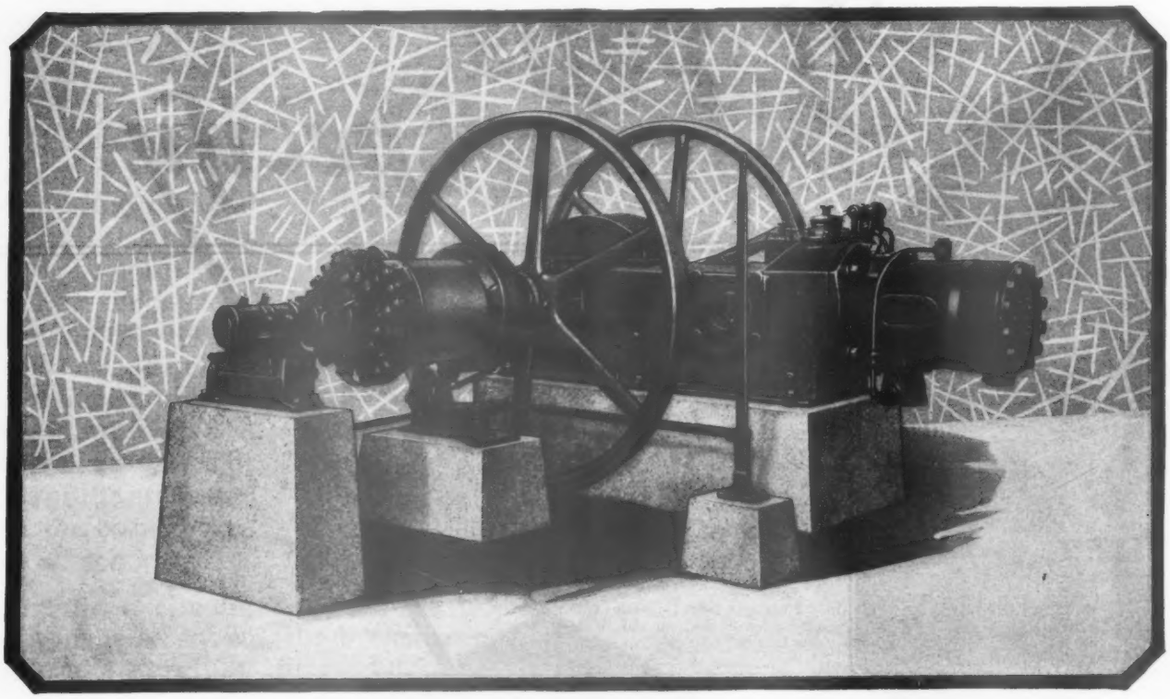

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BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

NORTH LA.-ARK.

(Continued from Page 55)

a Nevada County well, and at that it was a case of abandoning a location. J. J. O'Brien's No. 17-A Moss, Section 1-14-21, had been carried on field reports as rigged up awaiting orders since last November. Rig has been off for some time.

Deep Pay Boosts Runs

The full effect of Ohio Oil Co.'s No. 1 Bodcaw in Cotton Valley, and Pure Oil Co.'s No. 1 Gregory in Champagnolle is shown in daily average runs figures for the first full week they have been on production. They were responsible for an increase of 4,400 bbls. and the gain for the district as a whole would have been considerably larger but for slumps in other pools and no change whatever in two or three fields. A new division in classifications, Cotton Valley light and Cotton Valley heavy, made its appearance last week on the strength of a four-day run of the Ohio well and the marked difference in quality of the new oil. The deep production runs around 50 gravity and the original production was not classed above 32. Total daily average runs for the week were 134,160 bbls. compared to 129,760 the week before. Of this Louisiana pools moved 48,880 bbls. compared to 45,065, and Arkansas shipped 85,280 bbls. compared to 84,695 bbls.

Daily average runs from the several pools were the following: Caddo heavy, Pleasant Hill, and all Arkansas pools save Champagnolle showing a decline of from 5 to 440 bbls., all other Louisiana pools and Champagnolle showing gains of from 5 to 3,750 bbls., save Caddo light, Elm Grove, Bellevue, Urania, which ran as much this week as they did the week before:

Louisiana	
Caddo, light	10,500
Caddo, heavy	3,805
Homer	4,465
Haynesville	6,340
DeSoto-Red River	4,155
Elm Grove	555
Bellevue	1,120
Cotton Valley, light	5,550
Cotton Valley, heavy	4,435
Urania	7,400
Pleasant Hill	555
Total	48,880
Arkansas	
El Dorado	5,340
Smackover, light	8,195
Smackover, heavy	64,160
Stephens	1,065
Nevada County	1,510
Lisbon	2,290
Champagnolle	2,620
Bradley	100
Total	85,280
Both States	134,160
Last week	129,760
Increase	4,400

NORTH LOUISIANA

Bossier Parish

Bellevue—G. W. Wetherbee's No. 2 Smith, Section 23-19-11, is shut down for fuel (gas) at 396 feet.

Cartersville — Arkansas Natural Gas Co.'s No. 1 Crawford, Section 6-22-11, has cemented 6-inch casing at 2,637 feet to test 8-feet of sand at 2,696 feet which showed 8,000,000 feet of gas on drill stem test. J. R. Bahan's No. 1 Kilgore, Section 31-23-12, is drilling at 2,406 feet.

Delaware—Louisiana Development Co.'s No. 2 Bollinger, Section 38-23-12, is fishing for drill stem at 3,060 feet. Magnolia Petroleum Co.'s No. 1 Matlock, Section 25-23-12, total depth 3,074 feet, is reaming to bottom. Natural Gas Products Co. is drilling No. 1 United States Government with 12½-inch surface casing set at 410 feet. Location is 660 feet north and west of the center of Section 31-23-11. Northwest Louisiana Gas Co. cemented 6-inch casing at 3,068 feet in No. 1 Barnett, Section 25-23-12. The Texas Company's No. 2 Henry Rose, Section 31-23-11, is in shale at 2,519 feet.

Elm Grove and Sligo—Ellis & Markley's No. 5 Hunter, Section 14-16-12, is on a rock at 1,862 feet J. S. McCullough's No. 6 Hodges, Section 25-16-12, is waiting on standard rig to pump, total depth 1,548 feet. Palmer Corp. is trying to get returns in No. 10-B Caplis, Section 25-16-12, total depth 950 feet, with open hole from 201 feet. Sligo Syndicate has made location 1,320 feet west and 660 feet north SE cor. Section 14-17-12, for No. 2 Skannal.

Caddo Parish

Greenwood—Belchic & Laskey's No. 4 R. T. Sharp, Section 10-18-16, is drilling at 2,050 feet. Greenwood Production Co.'s No. 1 Cushman & Bridges, Section 15-18-16, topped the Nacatoch at 893 feet, set 10-inch casing at 149 feet and is drilling at 900 feet. Gross and others' No 1 Baker, Section 35-17-16, set 62 feet of 10-inch surface casing and is drilling at 450 feet. Magnolia Petroleum Co. cored lime at 2,895 feet on No. 2 Bell, Section 4-17-16.

Mooringsport and Oil City—Bee Oil Co.'s No. 1 Muslow, Section 29-20-15, is waiting on standard rig to pump, total depth 2,292 feet. Dobson and others are down 1,250 feet with No. 7 Rives, Section 5-20-16.

Pine Island—Dixie Oil Co. is swabbing No. 91 Dillon, Section 14-21-15, in an effort to get it back on production. After flowing at the rate of 2,270 bbls. of pipe line oil from a new sand at 2,702 feet, the well went dead. No. 92 Dillon, Section 13-21-15, is coring at 4,347 feet. Magnolia Petroleum Co. is bailing No. 8-A Hampton, Section 15-21-10, for a test at 4,039 feet; No. 22 Robertshaw, Section 23-21-15, cored oil sand at 3,971 feet. Bayou State Oil Co. is drilling No. 1 Jolly, Section 27-22-15, at 920 feet. Shreveport Oil Corp. has set 40 feet of 10-inch surface casing and is drilling at 600 feet on No. 3 Muslow, Section 32-21-15. Simms Oil Co.'s No. 1 Glassell, Section 23-20-15, is drilling at 1,860 feet. Simplex Oil Co.'s No. 3 Baird, Section 22-20-15, is down 1,800 feet. The Texas Company tested salt water with a little oil in No. 13-B Noel, Section 14-21-15, and has temporarily abandoned the hole at 3,979 feet.

LaSalle Parish

H. F. Taylor has rig up for No. 7 Urania, 150 feet south and 450 feet east NW cor. SE SW Section 19-10-2e.

Monroe District

Morehouse Parish—United Carbon Co. is drilling No. 1 Davis, Section 21-20-4, at 1,975 feet.

Ouachita Parish—Hatcher & Evans are drilling 6-inch plug in No. 7 fee, Section 21-19-4, at 2,160 feet. Montgomery and others' No. 1 Johnson, Section 30-19-4, cemented 8-inch second string at 865 feet and is drilling at 1,305 feet. Palmer Corp.'s No 1 Kate Cole, Section 26-20-4, began drilling April 9 and is making hole below 12-inch surface casing cemented at 176 feet. Pioneer Oil & Gas Co. cemented 8-inch at 850 feet on No. 1 Filhoil, Section 11-18-4. Southern Carbon Co.'s No. 50 fee, Section 18-19-4, cemented 8-inch casing at 815 feet and is drilling at 950 feet.

Union Parish—Industrial Gas Co.'s No. 1 Lewis, Section 14-20-3e, is waiting for 6-inch plug to set at 2,125 feet; No. 1 Simpson, Section 9-20-3e, cemented 12-inch surface string at 100 feet.

Richland Parish

Dixie Oil Co.'s No. 1 McCoy, Section 29-16-6, is drilling 6-inch plug at 2,300 feet. W. C. Feazel's No. 1 Noble, Section 36-16-5, cemented 6-inch at 2,283 feet and No. 1 Pardue of Feazel & Hemler in Section 21-16-6, is drilling at 500 feet after cementing surface string of 15½-inch pipe at 192 feet. Gulf Refining Co.'s No. 3 Rhymes, Section 28-17-6, is drilling lime at 3,079 feet. Moody & Seagraves' No. 1-B Sartor, Section 9-16-6, cemented 10-inch at 790 feet and is drilling at 915 feet.

Natural Gas & Fuel Co.'s No. 3-C Thompson, Section 21-16-6, is still pumping mud and water into the crater of No. 1 Thompson and No. 4-C Thompson drilled 6-inch plug, drilled into the pay at 2,466 feet and also is pumping mud into the crater. Ruston Drilling Co.'s No. 1 Mulhern, Section 19-16-6, is shut down at 1,900 feet; No 1-B Sartor, Section 9-16-6, is drilling at 1,342 feet. Southern Carbon Co.'s No. 1 D. R. Sartor, Section 9-16-6, is drilling at 2,000 feet.

Webster Parish

Cotton Valley—Humble Oil & Refining Co. has made location 660 feet south and east NW cor. SW Section 14-21-15, for No. 2-A Bodcaw; No. 6 Davis, Section

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(2)—Made in sizes of 1¼", 1½", 2", 2½", 3" and 4".

(3)—No grease to collect dirt, form scale and cause sticking.

(4)—Specially designed packing in both ends.

(5)—Fifteen (15) ton lift on core, 14" wrench, positive operation—no hammering.

(6)—One quarter turn of wrench to open and close.

(7)—Core (or plug) can't break or stick.

(8)—Made of special "BARSCO" steel—indestructible.

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14-21-15, is drilling at 1,665 feet and No. 2 Webb, Section 14-21-15, is drilling at 3,186 feet. Louisiana Oil Refining Corp. has rig up for No. 4 Lindsay, in the center NW NE Section 22-21-10.

Magnolia Petroleum Co.'s No. 1 G. W. Cole, Section 27-21-10, is in hard sand at 4,646 feet; No. 3 Aarnes-Cox, Section 22-21-10, has rig up; No. 1 D. G. Cox, Section 22-21-10, is drilling sand at 4,517 feet and No. 1 J. M. Mixon, Section 22-21-10, is in lime at 4,347 feet. R. W. Norton is arranging to deepen No. 1 Josey & Massey, Section 27-21-10, a 3,000,000-foot gasser at 4,657 feet, last September.

Ohio Oil Co. has made location 770 feet north and 660 feet west SE cor. Section 15-21-10, for No. 39 Bodcaw, in C NE SE, Section 15-21-10, for No. 40 Bodcaw and C NW SE of the same section for No. 41 Bodcaw. Palmer Corp. cemented 453 feet of 12-inch surface string on No. 1 Mixon, Section 22-21-10.

Sabine Parish

Magnolia Petroleum Co.'s Pleasant Hill well, No. 1-B Hall, Section 33-10-12, is drilling gumbo at 2,170 feet.

ARKANSAS

Nevada County

Autrey Oil Co.'s No. 1-C Haynie, Section 6-14-20, is waiting on standard rig to pump with 600 feet of oil standing in the hole from 8 feet of sand, total depth 1,188 feet.

Ouachita County

Smackover—Little Fay Oil Co.'s No. 6 Robertson, Section 25-15-16, is standing 400 feet in fluid 50 per cent water from 37 feet of broken sand, total depth 2,067 feet, and is waiting on standard rig. Ohio Oil Co.'s No. 7 Cramer, Section 22-15-16, is drilling at 2,007 feet. Phillips Petroleum Co. is drilling out 4½-inch plug in No. 1 Johnson, Section 34-15-15, at 1,965 feet. Sinclair Oil Co. is arranging to deepen No. 7-A Berry, Section 33-15-15.

Union County

Champagnolle—Arkansas Drilling Co. has made location 300 feet south and west NE cor. SE NE Section 1-17-14, for No. 1 Carroll, in the NE cor. NE NE, Section 15-17-14, for No. 1 Rowland on which they have rig up, and for No. 2 Rowland in the SE cor. NE NE of the same section. O. W. Estes' No. 1 Rowland, in the NW cor. SW NW, Section 14-17-14, has rig up. H. M. Johnson has derrick pattern on location for No. 1 Kelly, 330 feet north and east SW cor. SE SE Section 9-17-14. Magna Production Co.'s No. 2 Rowland, Section 14-17-14, is drilling at 2,708 feet. Ohio Oil Co. has derrick up for No. 2 Willis Pumphrey in the SW cor. SW NW Section 1-17-14. Rovenger Oil Corp. has rig up for No. 1 Pardue in the SE cor. NE NW Section 10-17-14. Rushing and others are arranging to test 3 feet of sand in No. 1 Gregory, Section 11-17-14, at 2,751 feet after a salt water test at 2,740 feet.

El Dorado—Mellor and others' No. 1 Bullock, Section 7-18-14, is bailing to test 12 feet of sand, total depth 2,169 feet.

Smackover—Lion Oil Refining Co.'s No. 7-C Murphy, Section 8-16-15, is drilling at 2,130 feet.

EAST TEXAS

Harrison County

Clark and others cemented 6-inch casing at 987 feet on No. 4 Furrh in the James Short Survey. Magnolia Petroleum Co. tested dry at 1,954 feet (corrected depth) on No. 2 A. G. Vincent in the R. W. Bedford Survey, and is fishing for one joint of liner.

Panola County

Llewellyn & Hasenfuss have set 60 feet of 10-inch surface casing in No. 1 T. Hill in the E. F. Mitcheson Survey and are drilling at 1,425 feet. Magnolia Petroleum Co.'s No. 1 T. C. Adams in the J. M. Birdsong Survey is in gummy lime at 2,308 feet; No. 1 Martha Richardson, Benson Lovell Survey, is in hard chalk at 1,565 feet; No. 1 Leigh Trosper, B. Stevenson Survey, is drilling shale and lime at 2,490 feet and No. 1 S. R. Vance, Jacob Womack Survey, tested a little gas at 1,050 feet and is arranging to deepen. Natural Gas Products Co. will abandon No. 4 T. C. Adams, Evans Brackins Survey, at 2,336 feet. The Texas Company is bailing No. 4-A T. C. Adams, Jacob Womack Survey, at 978 feet with 6-inch cemented at 975 feet; No. 3 G. W. Brumble, Evans Brackins Survey, is a derrick 2,053 feet north and 330 feet east SW cor. of the survey.

LA.-ARK. WILDCATS

(Continued from Page 55)

Corp.'s No. 1 Thompson, the crater well in Section 21-16-6, Richland Parish. No. 3-C Thompson, the north offset, has been pumping water into the sand at 2,465 feet for 10 days and No. 4-C Thompson, one location south, began pumping at the same depth a week ago, but so far definite results have not been reported. Some observers' opinion is that the plan is having more or less effect and that the crater is less violent, but the Department of Conservation is waiting for a quantity of dye, which has been ordered, to be put into the two relief wells before asserting that that flooding plan is having any effect. Clear water is being used as authorities were adverse to using even thin mud for fear it might gum up the sand close to the relief wells and thus seal off all possibility of flooding the bottom of the crater.

Lochnager Oil & Gas Co. abandoned No. 3 Beasley, Section 26-9-6, Catahoula Parish, on account of salt water at 3,072 feet. It was its third test in that immediate locality, the first having been a dry hole and the latter a salt water test after a 10,000,000-foot gas and salt water blow out at around 2,900 feet.

Gulf Refining Co.'s No. 1 Ches Wymond, Section 10-18-6, Richland Parish, was listed formally as a gas well making 11,464,000 feet at 930 pounds I.R.P. from a total depth of 2,693 feet in an entirely new sand the identity of which has not been given out. Location is half way between Monroe and Richland proven areas and from 200 to 500 feet below Richland and Monroe known horizons on a machine "high" worked out for the Gulf company last summer. Since this completion Gulf company has gone approximately 3 miles north and made location 1,376 feet north and east SW cor. Section 7-18-6, Morehouse Parish, for No. 1-A Ches Wymond. United Carbon Co. apparently has missed or passed both Monroe upper and lower gas rock in No. 1 Bastrop Pulp & Paper Co. in Section 18-21-6, Morehouse Parish, on the outskirts of Bastrop, field reports not having shown any tests or reports of shows down to 2,375 feet.

Salt Dome at Nelson

Humble Oil & Refining Co. proved existence of a salt dome at Nelson, in Bienville Parish when No. 1 J. C. Calhoun in Section 16-18-7 drilled 45 feet into rock salt topped at 915 feet. Location is probably on top of the dome as other wells drilled in that locality since 1920 have topped the salt at lesser depths. Tubbs and others' wildcat in southwestern Caddo Parish, No. 1 Tubbs, in Section 9-14-16, was abandoned as a dry hole at 2,730 feet after being shut down at that depth for a month. It was dry at 2,280 feet.

Territory in southeastern Caddo Parish and along the Caddo-DeSoto line has been prospected from time to time for the past several years and of late has been the scene of considerable geological reconnaisance work, and during the week announcement was made that Dupont interests have come into that territory and leased 5,000 acres in Township 15, Range 12, and taken options on another 5,000 acres, all of which is proposed to be developed for gas. It is planned to use the gas, if found, in the manufacture of synthetic alcohol derived from methane. The Texas Company has developed some gas in southwestern Caddo around Caspiana near which the Dupont block is located and Harrell & Simmons were also active in that territory lately.

NORTH LOUISIANA

Bienville Parish

S. P. Borden and others' No. 2 L. & A., Section 1-15-8, is drilling shale at 1,100 feet. Humble Oil & Refining Co.'s No. 1 Anderson, Section 29-18-5, is in hard sand at 2,557 feet.

Bossier Parish

H. S. Goodwin shut down and temporarily abandoned at 3,257 feet on No. 2

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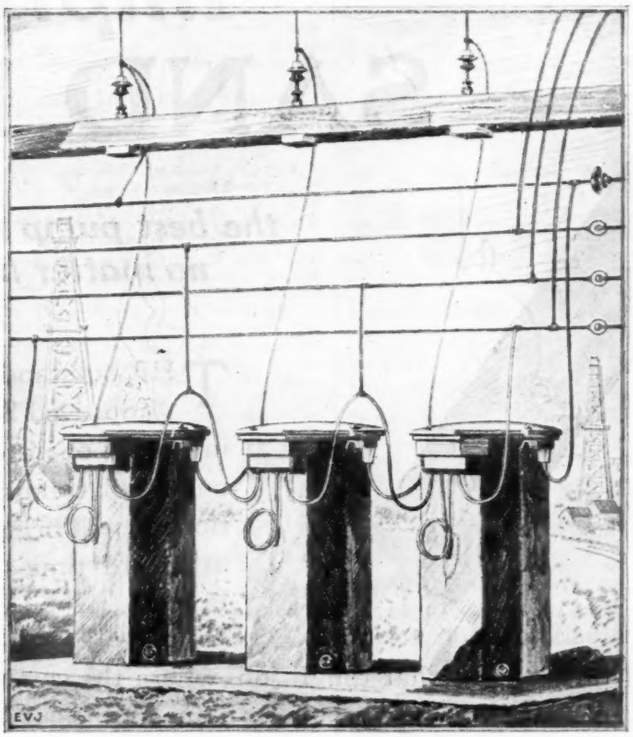

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Curtis, Section 36-17-13; has derricks up for No. 3 Curtis, 1,320 feet east and 660 feet south NW cor. Section 36 in Section 2-16-13, and for No. 1 McDade, 3,960 feet west and 660 feet north SE cor. Section 36-12-13. Gross and others' No. 1 Stewart, Section 15-18-12, set 10-inch surface string at 104 feet and is drilling at 1,276 feet. D. P. Johnson's No. 1 Caddo, Section 13-17-13, set 12½-inch surface string at 102 feet and is drilling at 250 feet. Triangle Drilling Co. and Empire Gas & Fuel Co.'s No. 1 Bulkley, Section 9-20-13, is drilling at 1,325 feet.

Caddo Parish

J. T. Cox began drilling No. 1 Hall, Section 7-15-16, April 4, set 60 feet of 10-inch and is shut down on top of the Nacatoch at 1,107 feet. Empire Gas & Fuel Co.'s No. 1 Nicholson, Section 33-17-14, topped the Blossom at 2,067 feet, tested salt water at 2,078 feet on drill stem test and is drilling at 2,100 feet.

Caldwell Parish

Greenwood Production Co. set 175 feet of 15½-inch surface casing on No. 1 Caldwell, Section 27-13-5, and is drilling at 1,050 feet. Leonard Petroleum Co. tested salt water at 3,782 feet on No. 1 Knott, Section 32-11-8, and is shut down waiting orders. Two weeks ago it was reported having had a show of gas at around 3,670 feet but no information was obtainable. The Texas Company's No. 1 Tensas Delta, Section 4-10-6, is arranging to set 195 feet of 15¼-inch surface casing.

DeSoto Parish

Gulf Refining Co. has begun drilling No. 35-A Jenkins, Section 35-13-12, and set 10-inch casing at 202 feet. R. O. Roy's No. 1 Tracy, Section 3-13-13, is waiting orders, total depth 1,650 feet, and No. 1 Whitaker, Section 5-13-13, is drilling at 2,020 feet. Williams and others have begun drilling No. 1 Fortson, a new location, in Section 4-12-11.

East Carroll

Palmer Corp. cemented 8-inch casing at 883 feet on No. 1 O'Brien, Section 7-19-11, and The Texas Company has begun drilling No. 1 Boone Live Oak Planting Co. in Section 11-20-12.

Grant Parish

W. D. Ball and others are arranging to set 915 feet of 8-inch casing to test 12 feet of sand in No. 3 Calhoun, Section 9-7-4, total depth 950 feet.

Lincoln Parish

H. M. Harrell's No. 1 Griffin, Section 17-19-1w, topped the Nacatoch at 2,198 feet and was dry on drill stem test at 2,251 feet and is drilling hard chalk at 2,404 feet.

Monroe District

Morehouse—Gulf Refining Co. has a fishing job on No. 1 Higginbotham, Section 42-20-7, having dropped bit and collar at 1,936 feet. No. 1-A Ches Wymond is a new location 1,376 feet north and east of SW cor. Section 7-18-6. United Carbon Co.'s No. 1 Bastrop Pulp & Paper Co., Section 18-21-6, is drilling at 2,375 feet.

Ouachita Parish—Phillips and others cemented 8-inch casing at 820 feet on No. 1 School fee, Section 16-16-4 J. P. White's No. 1 Schmidt, Section 3-15-4, cemented 6-inch at 2,434 feet, total depth 2,500 feet.

Union Parish—Carter & Goodwin are drilling at 1,500 feet on No. 1 Hudson, Section 7-23-1e. Ouachita Natural Gas Co. bailed dry at 2,263 feet on No. 1 Hamilton, Section 22-19-1e, and have shut down for orders at 2,275 feet.

Rapides Parish

Collins Brothers' No. 1 Allen, Section 25-5-1w, in Tioga townsite, is drilling at 2,780 feet. Glenmora Petroleum Co.'s No. 1 fee, Section 1-2s-2w, has shut down at 3,572 feet.

Richland Parish

Gulf Refining Co. is drilling sandy lime at 3,334 feet on No. 1 Millsaps, Section 8-17-6. Moody & Seagraves' No 1 McDonald, Section 9-15-5, is drilling at 2,597 feet and Woodley Petroleum Co. is in sandy shale at 3,024 feet with No. 1 Osborne, Section 3-17-7.

Sabine Parish

R. L. Gay is drilling hard lime at 2,400 feet in No. 1 Mansfield Hardwood Lumber Co., Cection 15-7-14. The Texas Company's No. 1 Hamlin, Section 28-10-12, is drilling chalk rock at 1,853 feet. Zwolle Oil & Gas Co.'s No. 7 Bosman-Hicks, Section 14-7-14, is drilling at 3,820 feet after whipstocking casing at 3,700 feet to sidetrack testing tool.

ARKANSAS

Bradley County

Johnson & Adams' No. 1 Southern Lumber Co., Section 12-12-12, shut down for orders at 3,015 feet last week, has resumed drilling and is on a rock at 3,050 feet.

Clark County

William Henry, trustee's, No. 1 Clark, Section 34-9-21, is shut down at 1,200 feet and McKenzie Oil Co. has temporarily abandoned No. 1 Eakin, Section 9-11-19, at 800 feet.

Dallas County

Decman and others are drilling No. 1 Hillman, Section 20-10-13, at 1,408 feet.

Union County

W. R. Keever's No. 3-B Ezell, Section 12-17-15, is standing with 50 feet of oil in the hole from 4 feet of sand, total depth 2,129 feet. Magnolia Petroleum Co.'s No. 4 Cranston, Section 19-17-14, is bailing to test 3 feet of sand, total depth 2,169 feet. J. O. Moore is drilling No. 1 Pagan, Section 18-18-11, at 2,420 feet. Rhodes and others cored sand at 2,670 feet in No. 1 Union Sawmill, Section 14-19-11, and shut down for a report.

East Texas

Shelby County — Magnolia Petroleum Co.'s No. 2 Pickering, W. J. Crane Survey, is drilling gumbo and boulders at 1,850 feet.

SOUTHWEST TEXAS FIELDS

(Continued from Page 52)

Slayden Field to test oil showing at 1,500 feet found in No. 3.

Guadalupe County

Wolf Creek Oil Co.'s No. 1 Mrs. L. Hocke, Harriet Cottle Survey, is location 150 feet to north line and west lines of Mrs. L. Hocke 54-acre tract.

Jim Hogg County

Moody Corp.'s No. 14 Palacious, Survey 291, Block 11, Randado Field, is rigging up 150 feet to south and east lines of block.

Webb County

Killam-Simms' (Maddox) No. 2 Bruni, Block 65, Albercas Field, is moving on, location for test 1,170 feet to south line and 150 feet to east line.

Starr County

J. E. Harston and others' No. 1 H. Guerra, Survey 43, has been abandoned at 1,120 feet.

Cole Field—Duval

Magnolia Petroleum Co.'s No. 2 B. Benavides, corner of Blocks 146-147-194-195 at 1,531 feet has sand and has set casing; No. 3 B. Benavides, corner of Blocks 144-145-196-197 is location; No. 4 Benavides, Block 3, O'Hern & Seacord Subdivision, 200 feet to southwest lines and 700 feet to northwest lines, is rigging up. Houston Oil Co. (Sun) No. B-1 Lopez, Survey 319, Block 4, at 1,722 feet tested 30,000,000 feet of gas on Lewis test and is setting liner.

Humble-Reiter-Foster

Humble Oil & Refining Co.'s No. 7 Kohler, Survey 165, located 200 feet to north and west lines, at 2,805 feet tested oil gas and salt water and is to test again.

Driscoll Field

Robert Driscoll's No. 11 fee, Survey 448, located 560 feet to east line and 1,050 feet to south line, at 2,458-61 feet on drill stem test showed large gasser and is setting casing. Edwards St. Albans' No. 1 Hyatt, Block 25, located 450 feet to south line and 150 feet to west line, is drilling at 765 feet with surface casing set at 210 feet.

Government Well Area

Partee and others' No. 1 Hahl, Survey 78, Block 16, is a location 500 feet to north line and 150 feet to west line.

Randado Field—Jim Hogg

Lightfoot and others' No. 1 Palacious, Survey 287, Block 13, located 150 feet to north and west lines, is drilling at 1,373 feet. Magnolia Petroleum Co.'s No. 37 Merchants State Bank, Survey 415, located 150 feet to south and west lines, has derrick up. Frank Koury's No. 1 Jones Weil, Survey 81, Block 9, located

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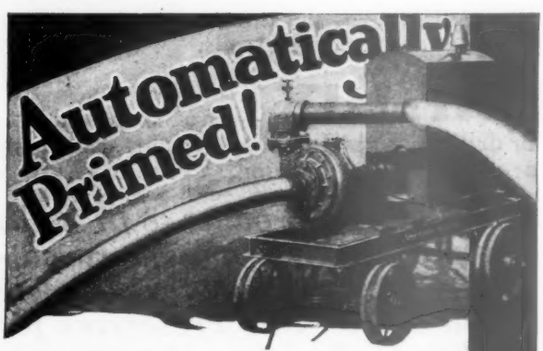

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200 feet to east line and 150 feet to south line, is in sand at 1,295 feet and reaming to set casing.

Schott Field—Webb

Magnolia Petroleum Co.'s (Carnahan) No. 1 Garcia, Survey 53, located 200 feet to south line and 500 feet to east line, is drilling at 3,695 feet; **No. 11 Garcia, Survey** 58, located 150 feet to north line and 1,620 feet to east line, is location.

Aviator or Bruni Tracts

Ruthada Oil Co.'s No. 8 A. M. Bruni, east half of Block 18, located 500 feet to south line and 450 feet to east line, is drilling at 200 feet. Salley and others (Radio) No. 8 Puig, is making location on the old Radio lease.

Cole Field No. 2

Cole Petroleum Co.'s No. 56 Benavides, Survey 412, Block 3, a location 160 feet to north and east lines, has spudded in; No. 57 Benavides, Survey 412, Block 3, 361.5 feet to east line and 162.5 feet to south line, has derrick up; location is being made for the No 58 Benavides.

Charco Redondo—Zapata

W. R. Duke's No. B-1 J. M. G. Martinez, Block 17, W. R. Duke Subdivision of the Charco Redondo grant, 150 feet to southeast and southwest lines, is drilling at 190 feet with regular Charco Redondo sand at 90 feet. This is to be a deep test.

Dale Field—Caldwell

Sun Oil Co.'s No. 4 Talley, W. C. Swearingen Survey, 300 feet north of No. 2, is location. The Texas Company's No. 4 Osteen, J Gilbert Survey, 150 feet to northeast and southeast lines of 77-acre lease, is setting casing, total depth 2,186 feet with no Serpentine yet.

Luling Field

M. K. Koenig's No. 6 Tiller, J. Henry Survey, 300 feet northwest of No. 3, is drilling at 1,000 feet. North & South's No. 1 Kelly, Nancy Reaville Survey, 660 feet to west line and 300 feet to south line of farm, is drilling at 7,586 feet in schist; No. 2 Tiller, John Henry Survey, 1,430 feet and 1,620 feet to east line of 300-acre tract is drilling at 7,228 feet in schist.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 5 Kleberg, Section 40, Block 8, located 150 feet to south and west lines, is in sand and shale at 3,012 feet. Houston Oil Co.'s No. A-2 Kissman, Section 41, Block 10, is a location 500 feet to north and west lines.

Oakville Field—Live Oak

Simmons Oil Co.'s No 1 Frank Church, 200 feet to south line and 600 feet west of NE cor. of farm, has set surface casing at 100 feet.

Adams Gas Field—Medina

C. E. Lange and Jake Jarmon's No. 1 Adams, Survey 71, located 500 feet to north and west lines of Block 20, is shut down at 164 feet.

Saxet Field—Nueces

Saxet Oil Co.'s No. 3 Weil is standing at 2,550 feet waiting on casing. The Texas Company's No. 1 State, Survey 689, located 150 feet to west line and 425 feet to south line, has derrick up.

Refugio Field—Refugio

Houston Oil Co.'s No. 1 Lambert is setting casing at 504 feet; No. 11 Heard is setting casing at 3,290 feet. Houston Gulf Gas Co.'s No. 4 W. Heard is drilling at 2,890 feet; No. 5 W. Heard is drilling at 3,000 feet; No. 1 Virginia Hallman is setting casing at 414 feet; No. 2 Shelly is at 3,307 feet waiting on casing; No. 2 Ryals is drilling in; No. 1 Vance is to make test of sand at 3,800 feet. Saxet Oil Co.'s No. A-6 Wilson Heard is ready to spud in. George Williams trustee's No. 1 Terrell is drilling at 3,200 feet.

White Point-San Patricio

Alamo Drilling & Leasing Co.'s No. 1 Hunter is reaming to set casing at 1,880 feet. Houston Gulf Gas Co.'s No. 1 J. M. Bennett is moving in machinery. Saxet Oil Co.'s No. 14 Rachal is drilling at 268 feet; No. 1 Bennett is standing; No. 1 Hunter is building derrick.

West Gas Field—Zavala

Tritex Oil Corp.'s No. 2 West, Juan Fuentes Survey No. 43, located 366 feet to north line and 266 feet east of Uvalde-Batesville Highway, is setting casing at 715 feet.

GULF COAST FIELDS

(Continued from Page 57)

Blakely, an old well deepened to 3,006 feet. It was put on the pump for 100 bbls. daily. This company's No. 2-C Blakely has been abandoned temporarily after drilling to 2,753 feet. Blakely & Means are deepening their No. 1 Blakely, being down 3,535 feet. H. R. Cullen has a derrick up for No. 2 Blakely, and is drilling at 3,562 feet in No. 2 Lafferty, 3,064 feet in No. 2 Davidson and at 4,919 feet in No. 1 Luscher. Gordon & Sharp have a rig up for No. 2 Blakely. Gulf Production Co.'s No. 11 Blakely is drilling at 3,180 feet. Its No. 12 Luscher has casing cemented at 3,600 feet. Navarro Oil Co.'s No. 4-B Robinson is drilling at 3,185 feet. Sinclair Oil & Gas Co.'s No. 1 Davidson is down 2,683 feet. Sam Watt's No. 3 Blakely is drilling below 3,200 feet and Watts Brothers Oil Co.'s No. 1 Scoot at 3,567 feet.

Big Creek—Fort Bend County

The Texas Company has abandoned its No. 3 Wheat after drilling to 4,432 feet. Gulf Production Co.'s No. 45 Davis is flowing 300 bbls. daily from sand at 3,585 feet. The only remaining drilling test at Big Creek is Gulf's No. 39 Davis, an old well being deepened. It is drilling at 3,990 feet.

Nash Dome—Fort Bend County

Rycade Oil Corp.'s No. 16 Wisdom, an old well deepened to 4,244-50 feet, has been completed flowing 750 bbls. of fluid, 30 per cent salt water and sediment. Rycade has another test in the sand, its No. 23 Wisdom. The 9-inch casing has been cemented at 4,120 feet preparatory to testing. Total depth of the hole is 4,135 feet. No. 24 Wisdom is drilling hard sand and lime at 3,966 feet. No. 25 is in sand and shale at 4,202 feet. No. 13 Nash is drilling shale at 4,780 feet.

Hardin County Domes

Two wells were completed at Sour Lake during the week, Theis Oil Co.'s No. 3 Merchant flowing 400 bb'ls. daily from sand at 2,506 feet and Minor Oil Co.'s No. 83 fee pumping 10 bbls. daily from 1,085 feet. Gulf Production Co.'s No. 1 Hamman is drilling at 4,085 feet.

At Saratoga, Rio Bravo Oil Co.'s No. 83 Jordit is drilling at 1,112 feet. Paggi Brothers' No. 45 Queen City is down 640 feet, and Gulf Production Co.'s No. 26 B.B.B.&C. is drilling at 1,400 feet.

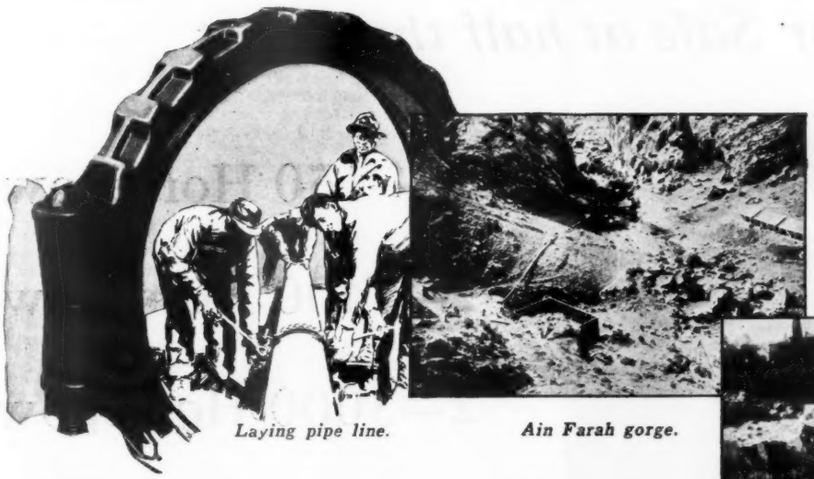
At Batson, Paraffine Oil Co.'s No. 72 Paraffine is drilling at 987 feet. Capitol Oil Co.'s No. 10 Hodges, is drilling at 3,930 feet. Hill & Dowell are starting a new test, No. 96 Millhome.

Pierce Junction—Harris County

Abercrombie & Harrison have started drilling their No. 1 Ritter and are down around 1,500 feet. Anderson & Plummer have a location for No. 3 Whitehead following the completion two weeks ago of their No. 2 as a 2,500-bbl. producer. H. R. Cullen has a rig up for his No. 5 Howe. Moody Corp. also has started drilling in its No. 1 Settegast, being down around 1,225 feet. The latter company's No. 1 Cooper is due for a test of sand at 4,732 feet, it having strainer set. Gulf Production Co.'s No. 19 Taylor is being washed at 4,470 feet. This company's No. 25 Taylor is drilling at 4,020 feet and its No. 1 Saunders at 4,083 feet. Leonard and associates' No. 1 Settegast, a deep test 500 feet southwest of production, is fishing and attempting to clean the hole. Its total depth is 5,940 feet in a formation showing oil. Rio Bravo Oil Co.'s No. 8-B Settegast is drilling at 3,195 feet. T. G. Shaw's No. 2 Fitzsimmons is drilling at 3,180 feet.

Goose Creek—Harris County

Humble Oil & Refining Co.'s deep test No. 73 Simms-Smith, Saturday was drilling shale at 5,878 feet. In addition to being a deep test it is over a mile from the main part of the pool. Humble company's No. 51 Gailliard (25 acres), is bailing for a sand at 2,537-60 feet, the casing having been perforated at that level. The test was drilled to a depth of 3,468 feet, where it was bailed dry. It is an old well being worked



Laying pipe line. *Ain Farah gorge.*

Line in trench in Jerusalem.

Victaulic Couplings

"For every joint on the line"

THIS 8-inch water main, in Ain Farah gorge, Palestine, is part of the eight mile line which supplies Jerusalem with water. The line is connected for its entire length with Victaulic Couplings. Some of the sections are laid at grades of 20 per cent with concrete anchorages to hold the line in place. The pressure on many parts of the line is 280 pounds per square inch.

The severe earthquake which rocked Palestine in the summer of 1927 shifted this line in places 3 to 4 inches and split concrete anchorage blocks. But no leak or break occurred in the pipe or the Victaulic Couplings.

* * * *

Under these exceptional conditions of pressure and strain Victaulic Couplings proved that they are suited to this job as they are for all temporary and permanent lines for water, crude oil, gas, sewage and compressed air.

Victaulic Couplings are straight line couplings, flexible couplings and expansion joints in one. They are supplied for all pressures from vacuum to 10 tons pressure per square inch, all sizes from ¾ inch up—for steel, wrought iron and cast iron pipe.

Unskilled labor can do all the work. A Victaulic Coupling is installed in two minutes. Victaulic Fittings make it easy to connect a Victaulic-coupled line with any type of existing lines.

VICTAULIC COMPANY OF AMERICA
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All-purpose couplings *"For every joint on the line"*

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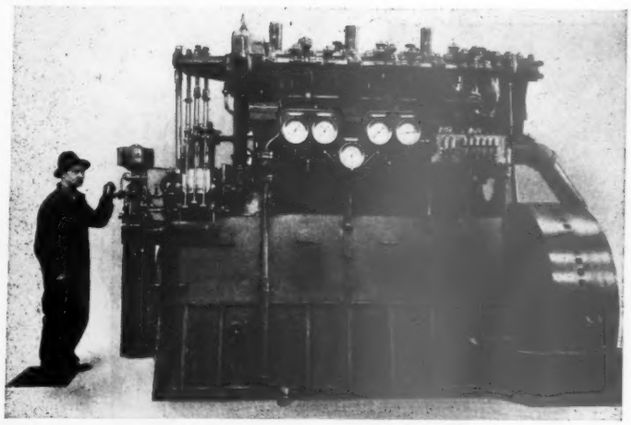


20— 150 Horsepower

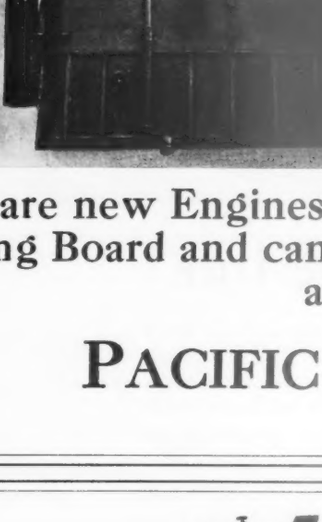
2— 400 Horsepower

2—3000 Horsepower

These are new Engines contracted for in 1925 by the United States Shipping Board and cancelled in 1926 owing to financial difficulties and delayed deliveries.

PACIFIC DIESEL ENGINE CO.

OAKLAND, CALIF.



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Thirty-five years of successful experience in the manufacture of regulators assure to the purchaser absolutely accurate and reliable equipment.

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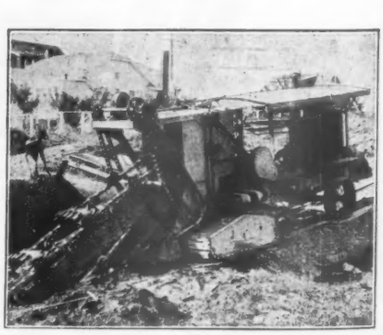
When you want to get pipe laid in a hurry, dig the trench with a

PARSONS MODEL 40

OIL FIELD SPECIAL

FOR pipe line digging, the powerful Parsons 40 is equipped with heavy stub boom, giving depths from 1 to 9 feet. 24", 30" or 36" heavy buckets can be used, with special alloy teeth and sidecutters to dig up to 42" in width. Four digging speeds through selective gear transmission. The 72 h.p. engine tests up to 90 h.p., giving a tremendous reserve of power to crowd the work when digging is tough. Write for complete specifications and performance records.



THE PARSONS COMPANY

Newton, Iowa

Sales Offices in Principal Cities.

over. Gulf Production Co.'s No. 16-A Tabb is drilling at 3,500 feet. Its No. 19 Hoffman-Gailliard is drilling at 4,490 feet. Butler & Perryman still are cleaning out hole preparatory to deepening No. 4 Bryan. A rig is up to deepen No. 7 Gillette. Port City Oil Co. also is to deepen No. 2 Gaddey.

Spindletop—Jefferson County

Yount Lee Oil Co. has two new wells at Spindletop, one on the Gladys City in the southwest flank and the other on the McFadden lease in the old part of the field. The former, No. 55, is flowing 700 bbls. of pipe line oil daily through 2½-inch tubing from sand at a total depth of 3,130 feet while the latter came in flowing initially 2,004 bbls. of pipe line oil through a half-inch choke from sand at 2,942 feet. The latter is 31.2 gravity. This company has abandoned its No. 54 Gladys City at 6,400 feet. Gulf Production Co. is drilling at 5,300 feet in No. 13 Oakwood. This company's No. 19 McLean is drilling at 5,190 feet, and its No. 1 Mann at 4,165 feet. Rio Bravo Oil Co.'s No. 54 T.&N.O. is drilling at 4,045 feet. Sun Oil Co. is drilling deeper in No. 4 Price, an old well, and is at 5,267 feet. Sun Oil Co.'s No. 1 Prather on the east side is drilling at 4,110 feet. The Texas Company's No. 1 Gladys City is drilling at 3,790 feet. Traders Oil Corp.'s No. 1 Cissell, north of Spindletop, is drilling at 4,362 feet.

Hull—Liberty County

Empire Gas & Fuel Co. got a well flowing 832 bbls. daily from sand at 3,125 feet, in its No. 28 Barngrover. Republic Production Co. has abandoned its No. 73 Dolbear at 3,325 feet, to which depth it was deepened the past week after testing salt water at 3,054 feet. Gulf Production Co. has a rig up to deepen its No. 20 Phoenix. Its No. 90 Phoenix is flowing 500 bbls. at 2,445-50 feet. Houston Production Co.'s No. 4 Taylor is drilling at 4,015 feet, Republic Production Co. is rigging up to deepen its No. 56 Dolbear, and in No. 77 Dolbear is drilling at 2,275 feet. The Texas Company and Vacuum Oil Co. are milling on casing at 3,165 feet in their joint No. 6 Hannah, an old well to be deepened.

Orange—Orange County

Rex Petroleum Co.'s No. 6 Carbello, an old well deepened, has been placed on the pump for 75 bbls. of fluid of which 60 per cent is water and sediment, from sand at 3,165 feet. Orange Petroleum Co.'s No. 3 Winfree, another old well, has been abandoned at 3,602 feet. It tested salt water. Rycade Oil Corp.'s No. 13-E State is in a shale at 5,664 feet believed to be heaving shale and also probably will be abandoned.

Atlantic Oil Producing Co.'s No. 3 Hager has been shut down at 3,430 feet. Gulf Production Co. has a rig up to deepen No. 8 Chessom. Its No. 12 Peveto is drilling at 2,890 feet. Rex Petroleum Co. has a rig up to deepen No. 14 Carbello. Sun Oil Co. also is rigging up to deepen its No. 3 Sunstream. Supreme Oil Co. has resumed drilling after a brief shut down in No. 2 Jackson at 3,694 feet where it tested salt water. It now is drilling around 3,725 feet. Tillery Oil Co.'s No. 3 Tasco is drilling around 3,400 feet.

High Island—Chambers County

Gulf Production Co.'s No. 2-A Smith is drilling at 3,051 feet. No. 1 League is down 2,078 feet. Marrs McLean's No. 13 Cade is drilling below 2,520 feet.

Barbers Hill—Chambers County

R. L. Bartlett's No. 1 Fisher is being put on the pump at a total depth of 2,145 feet. It will make a 40 or 50-bbl. well. Mt. Bellview Oil Co.'s No. 1 Williams is drilling at 3,566 feet.

Damon Mound—Brazoria County

Brazo Oil Co.'s No. 3 Wisdom is drilling below 1,225 feet. This is the only drilling test in this pool.

Markham—Matagorda County

Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 1 Hudson has been abandoned at 4,536 feet after testing salt water.

West Columbia—Brazoria County

The Texas Company has completed its No. 52 Hogg flowing 500 bbls. of fluid, 60 per cent water, from sand at a total depth of 3,741 feet. The oil tests 21.1 gravity. Gulf Production Co.'s No. 1 Tom Hogg is drilling at 2,654 feet.

Moore's Field—Fort Bend County

Gulf Production Co. is drilling at 3,910 feet in No. 15 Moore.

SOUTH LOUISIANA FIELDS

Jennings—Acadia Parish

Abshier & Bolyard's No. 1 fee has been put on the pump after working over and is making 60 bbls. of oil, 3 per cent water, from sand at a total depth of 1,795 feet. Port City Oil Co.'s No. 5 Jennings-Heywood, an old well, also is being put on the pump. E. L. Meyers has a rig up to deepen No. 2 Arnandet. E. L. Simms' No. 1 Cockrell is drilling below 1,940 feet. The Texas Company's No. 3 Rayne heirs is down 1,685 feet. Yount Lee Oil Co.'s No. 1 Crowley is at 3,000 feet and its No. 3 Housierre-Latrielle at 3,950 feet.

Another test has been started in the famous Valle Arpent, this being Salt Dome Oil Co.'s No. 2 Valle Arpent, 85 feet from the west line and 60 feet from the north line.

Edgerly—Calcasieu Parish

Rex Petroleum Co.'s No. 8 Hunter made only a 5-bbl. producer when put on the pump the past week. This is from a total depth of 3,604 feet. C. M. Crotty's No. 13 Lillard is drilling at 1,700 feet. Gilmer Oil Co.'s No. 1 Fairchilds is at 2,538 feet and Greeb Oil Co.'s No. 1 Read at 2,502 feet. Wilson-Broach's No. 2 Wilson is drilling at 3,600 feet and Rex Petroleum Co.'s No. 4 Hunter is sidetracking at 3,968 feet.

Lockport—Calcasieu Parish

Vacuum Oil Co. and Gulf Refining Co.'s No. 6 Bordages has been completed flowing 300 bbls. of fluid, 12 per cent water from sand at a total depth of 3,645 feet. As the week closed, another test, No. 5 Lock-Moore, was being bailed for a test of sand at 3,283 feet. Four old wells at Lockport now are getting ready to drill deeper, these being No. 3 Miller, No. 3 Farquahar, No. 1 Bayou D'Inde and No. 3 Frieber & Wolf. A rig is up for No. 4-A Farquahar, a new test. No. 1 Calcasieu River is drilling at 3,286 feet in sandy shale.

Vinton—Calcasieu Parish

Gulf Refining Co.'s No. 45 Star-Vincent is the only drilling test in the Vinton Field, it being down 2,550 feet.

Starks—Calcasieu Parish

Gulf Refining Co.'s No. 10 Industrial is drilling at 4,594 feet.

Sulphur—Calcasieu Parish

Union Sulphur Co. got a well flowing 800 bbls. daily of pipe line oil from sand at 3,977-4,003 feet in its No. 724 fee. The oil is 21 gravity. No. 723 fee is drilling around 3,000 feet. No. 725 is spudding in and locations have been made for Nos. 726 and 727 fee.

Anse La Butte—St. Martin Parish

A. G. Broussard is rigging up for No. 1 Bergeron, Section 118-9s-6e.

Miscellaneous Wildcats

Southeast Texas

Alexander & Lyles' No. 2 Goebel, Austin County, is drilling around 3,150 feet. Weadock and associates' No. 1 Ward still is shut down while changing rigs with the hole down 1,505 feet.

At Stratton Ridge, Brazoria County, Bowman and associates' No. 1 Seaburn is drilling around 1,500 feet. Twelve-inch surface casing was set at 192 feet. Gulf Production Co.'s No. 3 Perry is at a total depth of 5,627 feet.

B. A. Johnson's No. 1 Breeding, Colorado County, is drilling below 3,700 feet. E. M. Masterson's No. 1 Auerback, same county, is drilling at 1,000 feet. Rich Oil Corp.'s No. 1 Von Rosenburg fee is drilling at 2,100 feet, and Waldvogel and associates' No. 2 Tanner at 975 feet.

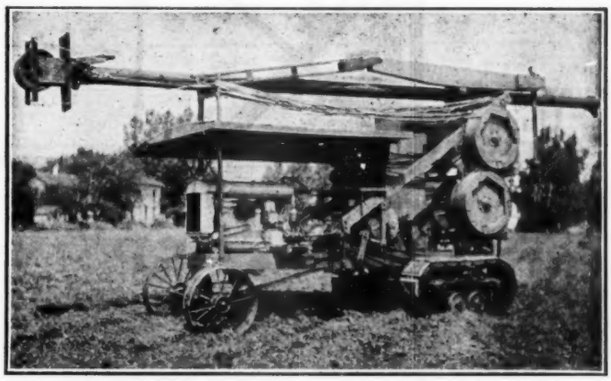
Hunt and associates' No. 1 Adorie-Lobit, 4 miles north of Goose Creek, Harris County, is drilling at 1,535 feet. Port Arthur Oil & Development Co.'s No. 4 West at Westbury, Jefferson County, at last report was in pink gumbo at 3,920 feet. Gulf Production Co. has spudded in its No. 1 Vineyard, Hawkinsville, Matagorda County.

South Louisiana

At Sorrento Dome, Ascension Parish,

The OHIO CLEANER

A Cleaning, Prospecting and Drilling Machine



Before you re-pressure your wells, clean them out with The **OHIO CLEANER.** A clean well is the best producer.

The **OHIO CLEANER** may also be used for spudding in new wells, drilling, prospecting, pulling casing, and drilling old wells deeper.

The **OHIO CLEANER** is light in weight, sturdily built, readily portable, and inexpensive. Its utility and low upkeep cost make it a mighty handy adjunct to the equipment of any lease.

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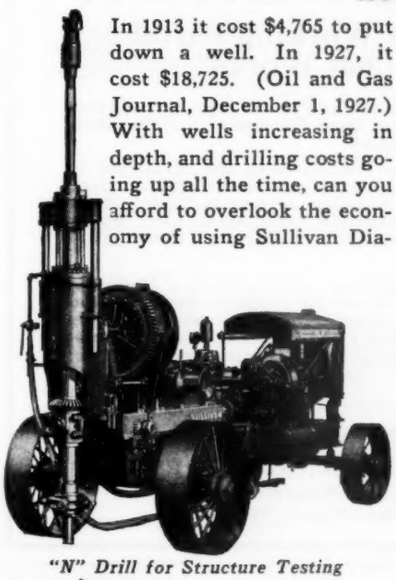
Drilling Costs Going Up

use Diamond Drills



"N" Drill for Structure Testing

In 1913 it cost $4,765 to put down a well. In 1927, it cost $18,725. (Oil and Gas Journal, December 1, 1927.) With wells increasing in depth, and drilling costs going up all the time, can you afford to overlook the economy of using Sullivan Diamond Drills for finding the oil?

You can test the structure of two or three townships, for the price of one wildcat well—which shows nothing, if it strikes no oil.

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PRODUCING REFINING MARKETING
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Gulf Refining Co.'s No. 6 United is drilling below 1,300 feet. Acme Production Co.'s No. 1 Pertuis at the town of Sorrento, is drilling below 1,800 feet.

Choupique Oil Co.'s No. 1 Benkenstein, Calcasieu Parish, is drilling sand and shale at 4,570 feet. Rex Petroleum Co.'s No. 1 Sallier is in gumbo and lime at 1,857 feet. Roxana Petroleum Corp.'s No. 1 Watkins at Black Bayou, west of the Hackberry district, is drilling at 906 feet.

Gulf Refining Co. is dredging a canal to its location for No. 2 Broussard at Loreauville, Iberia Parish. Its No. Z-4 State is fishing for one joint of drill stem. This test has an oil sand at 1,163-83 feet and has 6⅝-inch casing cemented at 1,150 feet. This is the test in which a blow out blew all but one joint of drill stem out of the hole.

At White Castle, Iberville Parish, Roxana Petroleum Corp. is abandoning its No. 1 Wilbert. This is the first test drilled on this dome. It drilled to 2,320 feet where it went into salt. The test had a good oil showing at 1,580-89 feet but bailed only salt water.

At the Bayou Des Glaise Dome, Iberville Parish, Union Sulphur Co.'s No. 2 Schwing is drilling below 1,500 feet after passing up an oil showing at 1,282-88 feet.

Southern Gas Co. set 6⅝-inch casing at 1,355 feet in its No. 5 Southdown, on the Terrebonne Dome, Terrebonne Parish, and is preparing for a test. This company has a location for another test, No. 1 Barrios, Section 104-17s-17e.

Jacob & Dannebaum have abandoned the location they had staked for No. 1 Viguerie at Grand Lake, St. Marys Parish. In West Feliciana Parish, Foster & Robinson have a derrick up, for No. 1 Raccourii. This test is about 25 miles north of Baton Rouge and in a rank wildcat district.

KANSAS FIELDS

(Continued from Page 50)

3 Dibbons, Lot 2, Block 1, Section 22-32-4, has been completed for 4,000,000 feet of gas in sand at 2,912-52 feet.

Elk County

Minnehoma Oil Co. has a machine at the location for No. 2 Furguson, NW cor. SW, Section 3-31-8.

Ellis County

Thomas & Moncreif made location for No. 1 Boettcher, C SW, Section 21-13-19w.

Greenwood County

Theta Oil Co. made location for No. 8 Fankhouser, SE cor. NE SW SE, Section 23-22-12. Simmons and others made location for No. 1 Fankhouser, NE cor. SW, Section 26-22-12. Sheedy and others made location for No. 1 Gilroy, SW cor. SE, Section 12-25-12. Mendenhall and others' No. 1 Grossart, NE cor. NW SW, Section 5-25-13, is spudding. Mohawk Oil Co. has erected the rig for No. 3 Grundy, NW cor. SE NW, Section 7-27-11. The Prairie Oil & Gas Co. made location for No. 1 Mosby, NE cor. SE NE, Section 34-23-8.

Theta Oil Co.'s No. 7 Fankhouser, SE cor. NW SE SE, Section 23-22-12, had sand at 1,640-1,711 feet and made 100 bbls. after a shot of 200 quarts. Empire Oil & Refining Co's No. 2 Schwab "B," NE cor. NW SW, Section 30-22-13, was completed for 90 bbls. in sand at 1,752-72 feet. No. 3 Schwab "B," NW cor. NE SW, Section 30-22-13, made 100 bbls. from sand at 1,751-85 feet. Simmons & Rhodes' No. 2 Schwab, NW cor. SE SE, Section 30-22-13, was completed for 25 bbls. in sand at 1,706-18 feet. Kanson Oil Corp.'s No. 4 Freeman, SE cor. NE SW, Section 6-24-11, was shot with 60 quarts in sand at 1,830-45 feet and made 51 bbls. The Prairie Oil & Gas Co.'s No. 1 Hughes, SE cor. NE SE, Section 26-24-12, is dry and abandoned at 1,773 feet.

McPherson County

Derby Oil Co. has the rig on the ground for No. 1 Boughman, C SW SW, Section 21-18-2w.

Marion County

Givens & Hershey's rig is up for No. 1 McCoy, SW cor. SE NE, Section 14-17-4. Phillips Petroleum Co. is erecting the rig for No. 1 Boyington, NE cor. SE NW, Section 15-17-4. Loomis and others' No. 1 Boisington, SE cor. NE NW, Section 15-17-4, has been completed for 200 bbls. in sand at 2,332-84 feet. Skow and others' No. 1 Melcher, C NE SE, Section 20-18-4, is dry and abandoned at 2,408 feet.

Rooks County

Phillips Petroleum Co. has the rig on the ground for No. 1 Tatkenhorst, NE cor. NW, Section 14-9-16w.

Sumner County

Helmerick & Payne made location for No. 1 Broadhurst, SE cor. NE NE, Section 13-33-2. Roxana Petroleum Corp.'s No. 3 Barnes, C E half SW SW, Section 14-32-2, Oxford Pool, was shot with 170 quarts in sand at 1,995-2,106 feet and made 2,100 bbls. Wasson and others' No. 8 Gassoway, C W half SE SW, Section 14-32-2, was completed for 950 bbls. in sand at 1,979-2,101 feet. Barnsdall Oil Co. and others' No. 4 Wenrich, NE cor. NW NW, Section 23-32-2, was shot with 200 quarts in sand at 1,987-2,110 feet and made 1,500 bbls. The Prairie Oil & Gas Co 's No. 3 Olson, SW cor. NW NE, Section 3-35-2, was completed for 167 bbls. in chat at 3,408-50 feet.

Wilson County

Scott and others' No. 1 Blank, NE cor. SE NW, Section 10-28-14, made 35 bbls. after a shot of 60 quarts in sand at 960-88 feet.

Woodson County

Pure Oil Co. has a machine at the location for No. 7 Peck, SE cor. NE NE, Section 20-23-14. Peterson and others made location for No. 1 Andrews, SE cor. SW SW, Section 31-23-16. Fess and others' No. 1 Roberts, NW cor. NE, Section 3-24-16, is drilling at 400 feet. Southern Kansas Gas Co.'s No. 1 Morgan, SW cor. Section 8-24-17, has drilled to 1,480 feet and shut down. Curtis and others made location for No. 1 Rhea, NW cor. NE SW, Section 22-25-14. Fees and others' No. 1 Rudd, NE cor. SW, Section 8-24-15, has been abandoned at 1,421 feet.

PENNSYLVANIA MARKET SHOWING IMPROVEMENT

OIL CITY, Pa., April 14.—The refined market in Pennsylvania during the past week showed great improvement and is now the best that it has been in months. The present situation is good and the outlook for the future also excellent.

Gasoline during the week was much better. The largest refining concern in the State is reported to be charging 8¾ cents and accepting no orders for April delivery at present. The demand is said to be very great at all the refineries. Consumption has also gone up at a rapid pace, due to the arrival of better motoring weather throughout the marketing territory supplied from Pennsylvania refineries.

Kerosene is in much greater demand due to the opening of the spring plowing season. It is expected to be much greater during the next few weeks as more farmers get their tractors into action. The price, however, has not responded to the better demand.

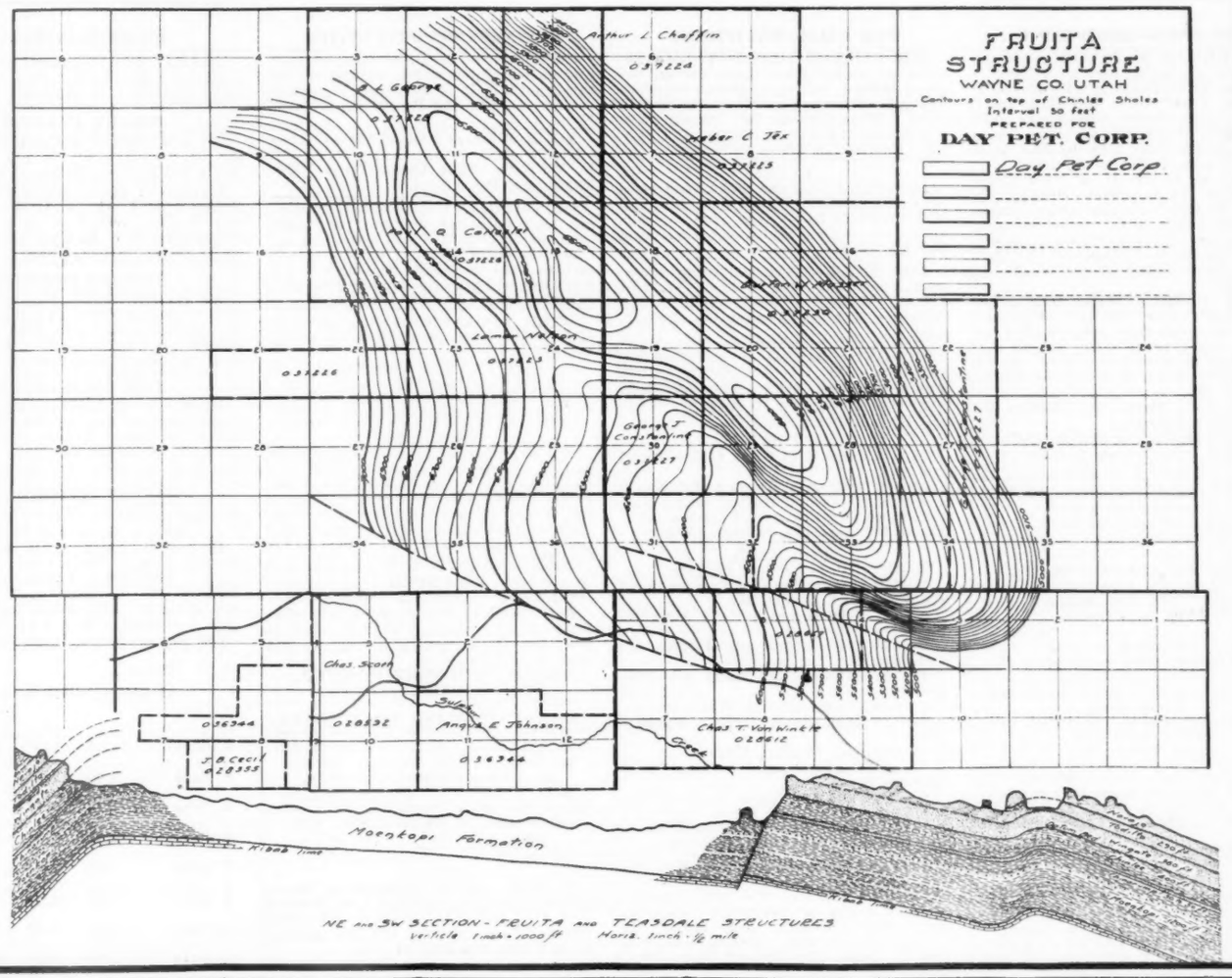
Fuel oil continues in about the same condition as it was during the previous week, strong and in good demand. Neutrals are unchanged. Cylinder stocks are reported to be slightly improved with a trifle more buying being done.

Wax is much improved, there having been a big spurt due to increased export demand during the past five days. Prices are some stronger. Bright stocks are also improving.

D. H. HAYDEN DEAD

CHATHAM, Ontario, Apr. 14.—David H. Hayden, at one time prominent among the pioneer operators in the Petrolia Field, died at Detroit recently in his seventieth year. A native of Terre Haute, Ind., he came to Petrolia in the early sixties, moving to Detroit in 1900.

DRILLING OPPORTUNITY



LOCATION

The Fruita Anticline lies on the east flank of the Waterpocket Fold and is located in Wayne County, Utah.

STRUCTURE

The axis extends from Notum to Thousand Lake Mountain. As indicated in the map the structure has a closure of two hundred feet containing about three thousand acres within the limiting contour.

STRATIGRAPHY

Navajo beds of Jurasic age form the outer scarps with underlying Todilto on the crest. The drilling objectives would be the Shinarump sand, the Basel Moenkopi and Kaibab. On Freemont River, about ten miles distant, the Basal Moenkopi is saturated with oil and on Miners Mountain nearby the Kaibab of Permian Age also shows saturation. These objectives can all be reached on the Fruita Anticline at a depth of less than 2,500 ft.

FUEL, WATER AND TRANSPORTATION

Wood is the only fuel to be had close to the location but coal can be brought in from the railroad. Water is scarce during the late summer months and a small reservoir would be needed to store flood water. Some road building would be necessary to bring in the rig.

CONCLUSIONS

The structure has sufficient closure to hold oil. The drawing area to the east is ample. The objectives to be tested show oil saturation at nearby points where they outcrop, which should make the structure an oil producer. The drilling depth to test the fold is reasonably shallow. Water and fuel are not plentiful but can be provided. Market for oil good at Salt Lake City, and a local market for refined products could be made. This structure should be drilled.

TERMS

A substantial block of acreage is offered on this structure covering the best land available at a small cash bonus and a royalty of 12½% on the preferred acreage, and 15% on the non-preferred acreage. All land is held under Government Permits. The contractor must agree to drill to a depth of 2,500 feet or production at shallower depth.

For further information, write

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Battery of 2—350 H. P. each Heine Water tube boilers, each 202-3½"x18' tubes, 4-36"x18' horizontal steam drums, full flush front, with water columns, steam gauges, safety and blowoff valves, and all auxiliary fittings, oil for fuel. Mfd. by Heine Safety Boiler Works, St. Louis, Mo.

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On account of illness I am compelled to give up my former business as a driller of oil and gas wells. By reason thereof I am placing my Parkersburg Drilling Machine and outfit for the drilling of oil and gas wells upon the market for sale. The outfit is complete; when bought new the invoice price was $8,000.00 it has been carefully handled and well cared for, has drilled from 15 to 18 wells at a depth of about 1,200 ft.; it is in first class condition, anyone desiring to become the owner of a good outfit for the drilling of oil and gas wells should not fail to examine the same. At the present time it is located on the Campbell farm three miles east of Bryant, Indiana.
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THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

MECHANICAL Engineer-Draftsman—Stanford graduate 1916, single, age 35, ten years' experience in oil field and refinery design. No objection to leaving U.S.A.; army airplane pilot. P. O. Box 265, Cleburne, Tex.

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JONES REALTY COMPANY
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LEASES—PRODUCTION

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COMMERCE DEVELOPMENT CO.
First Nat'l Bank Bldg.,
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HAVE 4,000-acre lease, Haskell County. Set 2,500, 8¼ pipe. Will sell any part to complete to 3,600. Good looking block. Good tools and rig. Box 155, Haskell, Tex.

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Oil leases and royalties.
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I HAVE 4,000 acres solid block Concho Co., Texas, will let drilling contract. Frank Smith, 1612 Allen Building, Dallas, Texas.

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ROYALTIES WANTED — Cash for producing royalties, any size, priced right. Write description, full details and price. P. O. Box 1359, Tulsa, Okla.

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PRODUCTION for sale; shallow, 42 gravity sweet oil. Brown County, Texas. Price right Address Cooper, 214 S. Akard St., Dallas, Tex.

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FISHER COUNTY, TEXAS
New pool found here, 38 gravity oil. Offer E ½ of W ½ Sec. 2, Richardson Survey, 1/16 of landowners 1/8 royalty on 160 acres for only $600. Two miles south of Crawfill & Reynolds well. Location expected to be made adjoining, so you will have to hurry to get this. John M. Haseley, 1729 Bennett Ave., Dallas, Tex.

WANTED—Producing royalties. Furnish complete information. Mid Valley Co., 3608 Charlotte St., Kansas City, Mo.

Snows and Rains Hit Chicago Market

Consumption of Gasoline in April So Far Below March. Kerosene Strong. No Change in Fuel Oil Demand

By J. B. Waldo

CHICAGO, Apr. 16.—The markets were quiet today and the demand for all petroleum products was light. The cause for this condition is doubtless the kind of weather which has been had over nearly every part of this territory. Deep snows or heavy rains over the week end with temperatures below normal for the season have cut into consumption of gasoline everywhere. Road conditions in the country have been made worse and in several cases salesmen visiting their trade by auto have been obliged to leave their cars and travel by rail to make their towns. Consumption of gasoline for the first half of April is below March and the heavy purchases made at the opening of the month are partly in dealers' tanks if they have been shipped.

There was a light demand for U. S. Motor gasoline from dealers and little call for the higher gravities on Monday.

The refinery market was 6¾ cents for the motor grade, but it was possible to buy from marketers cars in transit at an eight and occasionally at a quarter cent less. These were the residue of purchasers made to be ordered out during the first half of April and the owners were trying to move the gasoline before the cars reached the local yards.

Kerosene Very Strong

Kerosene was very strong on conditions such as a good demand and very limited stocks at a price range of from 5 to 5¼ cents. Not a refiner with offices here has any supply for sale outside of its own customers and most of the refiners are considerably behind in shipments. Several refiners advanced today to 5¼ cents while at least one withdrew quotations. There was practically no demand for distillates. Zero gas oils are quiet and unchanged as to price, but the U.G.I. specification is very strong as there is a considerable demand for this oil. The usual quotation is 2⅝ cents, with gas companies and large buyers quoted direct at 2½ cents.

Fuel oil showed no change in prices or demand from last week. Dealers at northern points in the territory state that they have deep snows and that the weather is so cold it is not going off rapidly. The local trade is not looking for an active gasoline market the coming week and kerosene may be slower at the same time.

Volume of Buying

The first week of each month is usually the time when the buying of gasoline by distributors is at the largest for that month. April has been no exception to that rule. During the first week in this month the buying was large and it ran over into the second week as Monday and Tuesday of last week were good days with most of the sales organizations. The purchasing dropped off later in the week although there were some exceptions as several sales offices had a good or fairly good business right up to the end of the week. But it is not a fact that the total business of the market held at the high peak of the average of the first two days or of the preceding week. This is a thought that it is well to bear in mind in planning the month's runs and not expect that the starting of the month will indicate its continuance over the period. In a good number of instances country dealers have stated that they were not buying at present no matter how attractive the offer as they had all the gasoline they would need for the current month either in their storage or bought for shipment before the end of April. The bad weather of Easter Sunday and the heavy rains and snows of that day and in some sections the day or more immediately preceding or following Eastern undoubtedly slowed up the consumption in the country districts and did not add to the consumption even in the cities. Some of the dealers report that their gallonage has been fair at best but they blame this wholly on the weather and road conditions.

There is room for a great additional mileage of good roads in the Middle West where the old-time prairie dirt roads, even with a coat of gravel, will not stand the weight of a motor car, much less a truck until they are thoroughly dried out. Every spring the oil man must perceive the advantage to his gasoline business of good roads and he should back up every consistent good roads program.

In spite of this slight and temporary check to the amount of gasoline consumed the trade here is thoroughly convinced that this is going to be a good gasoline season and that prices will work higher. Several leading oil men here, each occupying a responsible position with a large refining organization as vice presidents in charge of sales, sales managers and the like, were asked their opinion as to the price to which gasoline would advance during the coming 60 days. The answers, of course, varied, the range being between 7 and 8 cents for U. S. Motor grade, with a decided majority favoring 7½ cents. These expressions were asked for and were understood to be merely opinions based on present known conditions. It was agreed that the domestic consumption would be about 12½ per cent greater than last year and that present supplies were smaller and that there was an abundance of crude but not of the higher gravity gasoline material. Some thought there might be an advance in the posted price of the lighter crudes and several expressed themselves as very watchful of what might be developed in the way of gasoline output from some of the abundant heavy crudes.

West Texas Crude

In one instance it was stated that the concern with which the speaker was connected had been experimenting with the heavy West Texas product and that after many disappointing experiences had finally developed a process which produced a high quality gasoline free from objectionable odor, possessing high antiknock qualities and of as good color as any gasoline refined from any crude and holding the color with great stability. The gasoline, it was stated, could be refined from West Texas crude and the yield of gasoline to crude run was large. It is for such possibilities as this that the oil men mentioned were watching.

Otherwise there seemed little danger of any large overproduction of gasoline as the lighter crudes were strongly held and not available to every refiner that might like to operate his plant on this grade of crude. The California supply is in good hands and the East Coast refineries have in some instances stated that they would be unable to supply the demand from their part of the country without buying. Taking all known factors into consideration it seems a very fair estimate that the next 60 days will see 7½ cents as the ruling price for U. S. Motor grade. The case of the refiner who had succeeded in overcoming the difficulties inherent in West Texas crudes is exceptional. None but a large plant would be likely to possess the complete equipment required and many who possess the equipment have not yet learned just how to use it to secure the results mentioned by the refiner. The refining industry has shown such fertility of invention that given time, any crude is made a good gasoline crude but not all refiners are able to cope with the complex problem presented by some of the crudes that are being produced in large quantities today. The present season seems secure from any oversupply of gasoline owing to the condition of light crude supplies, the situation in California and the fact that recent runs of the West Coast plants have been marked by a decline in the quantity of gasoline refined although the crude runs showed an increase.

Price Situation

The price situation during the last week showed little variation. The week began with the majority of the refiners holding for 6¾ cents for the U. S. Motor grade and a few naming 6⅞ cents as their lowest price for this product. One or two asked 7 cents but this was a little ahead of the market and sometimes they shaded their price, "to meet competition," as the statement made expresses their position. Towards the close of the week a little U. S. Motor gasoline was offered by resellers at 6⅝ cents to buyers with immediate instructions. The quantity was small and was the remainder of purchases made to be delivered during the first half of April which had not been moved at the market price of 6¾ cents. A little brisk buying would have cleaned out these stocks of gasoline. There were statements made that this grade could be bought freely at the lower price which was not a fact. The demand for the higher gravities did not seem to be quite so active as the warmer weather is having its customary effect of causing the motorist to drop back to the regular station grade and save the premium asked for the better grades. The 60-62 400 endpoint has been very close in price to the 64-66 375 endpoint and at times some refiners have been naming a higher price for the 400 endpoint than other refiners named for the 375 endpoint.

Mileage Claims

Many motorists claim that they are able to secure a better mileage per gallon with the U. S. Motor grade than with the higher gravities and as soon as the warmer weather does away with the advantage in starting which makes these more volatile gasolines so desirable in cold weather they change to the regular U. S. Motor grade. Refiners with well-known antiknock gasolines sold under their own trade name report that their business in these motor fuels runs along very steadily but there are quite a number of distributors who seem to have lost some of their enthusiasm for special motor fuels and some have changed back to the regular grades. Takings on contracts are good, no complaint being made by any of the offices where there are numerous contracts in force regarding the way in which dealers are ordering out supplies on contracts. There is little improvement in the situation in the differential territories such as Ohio, eastern Michigan and parts of other states to the east of Illinois. In some parts of Ohio for example a price is named that seems nicely calculated to just undersell the Mid-Continent refiner but in other parts competition between the local refiners and those just outside of the state continues to enable the dealers to secure delivered prices that are better than a cent below the parity of prices from Group 3. A large buyer in Cleveland reported last week the purchase of U. S. Motor gasoline at a delivered price that would net the Group 3 refiner 5.75 cents per gallon. Refinery sales offices here state that stocks at their various plants are low. Middle West refineries are running at or close to capacity with no excess of stocks on hand for the season of the year.

Kerosene Sought

Kerosene has been sought by buyers all the week. Several of the larger integrated companies have been buying good gasoline and kerosene, others just kerosene. Supplies are light. Some of the large buyers are still holding off hoping for a lower market after the first of May. Among the buyers of kerosene here have been the Pure Oil Co, Sinclair Refining Co., Carson Petroleum Co., Indian Refining Co., It has been stated that the Standard of New Jersey is in need of kerosene for its export division. The dealer buying has been steady but not especially large. There are several kinds of crude which are being run largely by some refineries that do not yield a good grade of kerosene nor a large percentage. Among these crudes are the West Texas and Venezuelan crudes. Some kerosene might be refined but it requires extra processing which adds to the cost of the kerosene. The yield of kerosene per crude run was low in February according to Bureau of Mines reports in several refining sections of the industry.

The result has been advancing prices for the 41-43 gravity with many refiners unable to quote for prompt shipment and few having any supplies except for their regular trade for whom they were conserving such stocks as they had and might run. By the end of last week 5 cents had become the low price for the 41-43 gravity and some sales were made at 5¼ cents with the probability that a continuance of the present demand would cause a further advance. With the fields well dried out, there will be a larger demand for tractor fuel as farmers will want to rush their spring plowing and planting. Some of the 38-40 distillate with a low flash makes a good tractor fuel and it is being used in some sections to quite an extent. Gasoline is preferred by many tractor users so the supply of tractor fuel is not limited to kerosene.

Distillate and Gas Oil

Occasional orders for small quantities of distillate made up the total of the business in that product. Quotations were nominally unchanged but there was little haggling regarding a small concession, especially if the sale of other products was included in the transaction.

Gas oil has held firmly and there is quite a demand. Some large inquiries have been received, one from Detroit of 500,000 gallons being the most important. Some of the large gas companies have been asking their sources of supply to catch up in deliveries. There is, of course, a falling off in the consumption of gas oil by domestic oil burners and this will continue to dwindle as the month progresses until the coming of really warm weather makes the use of the burners unnecessary. The demand for industrial use is also good as it is favored as a fuel by many of the smaller industries who use it both for heat and power. Of course there are some fairly large users who prefer gas oil as they are accustomed to a free flowing oil. For this purpose there is a steady demand for the 28-30 gravity and the other grades below the regular 32-36 oil. For the industrial 32-36 gas oil the market is firm at 2½ cents in quantities and for resale, with zero oils selling at 2¾ cents and upwards to possibly 3 cents in some instances where the oil was particularly desirable. Something has been said of slightly lower prices at times in gas oil but these lower prices were only an eighth of a cent below the market and were for a heavier oil than the 32-36 gravity and in some in-

(Continued on Page 143)

Gasoline Strengthening on East Coast

Kerosene, Lubricants, Gas and Fuel Oil and Minor Products Firmer. Renewal of Exports Factor in Improvement

By Special Correspondent

NEW YORK, Apr. 16. — Strengthening markets for gasoline, and firmness in kerosene, lubricating, gas and fuel oils, and minor products, about sums up the week in East Coast markets. Steadily increasing consumption of gasoline, with a renewal in export interest, was a development of the week.

Eastern refiners and marketers are gradually getting their house in order for what is expected to be an advance in the tank wagon price basis, together with the restoration of the tank wagon quotation as the actual market price for gasoline.

The official tank wagon quotation for the territory is 17 cents a gallon, and it begins to appear that this price is assuming some real meaning, for the first time in nearly a year. Service station operators who have been making 6 to 8 cents a gallon on their gasoline sales will soon find themselves back on a 3 or 4-cent margin, if present plans of the refiners materialize.

Independent marketers are still cutting under the prices of the bigger factors. One of the largest local chains has just concluded a "special sale" period, during which gasoline was sold at 10 cents a gallon retail. Some of the other independents are posting a 13-cent price at retail.

With the larger marketers getting the stage set for a higher gasoline market, the independents are showing firmer price views, and it is probable that motorists in the metropolitan territory will find the retail market 2 to 3 cents a gallon higher in the near future. Warner-Quinlan this week advanced its published quotation 2 cents to 17 cents per gallon for motor gasoline, with its special blend 2 cents higher. Other independents are marking up their prices to the retail trade and at their own service stations.

Jobbing gasoline at 9¼ cents a gallon at Bayonne refineries has made for changed conditions in the market here, and with a 10-cent market looked for in the near future, independent jobbers are not disposed to book ahead at current price levels. The improbability of any heavy movement of gasoline from California or the Southwest to Atlantic Seaboard markets at prices better than the present basis has been a contributing factor in strengthening the market situation here.

Gasoline

The jobbing market is still 9¼ cents at New York and near-by refineries, no further advance having materialized during the week. The market has lost none of its strength, however, and traders who had been predicting a 10-cent basis by the end of April declare they see nothing in the situation to cause them to revise their ideas. There has been a heavy demand throughout the week, with jobbers filling their storage in anticipation of higher prices. Demand has been running at a rate which has not permitted distributors to accumulate much surplus stock, however, and there is a gratifying amount of "repeat" business in the market. Some refiners are quoting 9¾ cents, but with the largest sellers doing 9¼ cents yet, the top price has little significance beyond indicating the price trend.

Export gasoline in cases has been advanced 25 points to 25.15 cents a gallon under the stimulus of heavy sales and firmer refinery prices. There has been a renewal of export inquiry for gasoline this week, although the volume of actual trading is not up to that of a few weeks ago.

Effective April 12, bulk gasoline, delivered at Boston, has been advanced 1 cent to 12 cents a gallon, in tank car lots. New England Oil & Refining Co. led in the advance, which was followed by Beacon Oil, Cities Service, Pan American, and other marketers. This strengthening of the gasoline market position in New England was expected to be followed by a markup in New York territory.

Kerosene Firm

The refinery situation is strong on the East Coast, with water white unchanged at 7½ cents a gallon in tank car lots at the refineries. Sales have shown some spurt during the week, weather conditions being favorable for heavier consumption. Advances in kerosene prices at refineries in the Southwest have strengthened the position of the eastern market, but aside from a 25-point jump in export quotations on cased oil, prices in the East are without change. An important feature of the eastern market has been the recent heavy movement of kerosene into export channels, this buying taking considerable quantities of kerosene from the market. There are still ample stocks on hand, but with the market well supported at current going prices, refiners are optimistic for the immediate future. The tank wagon quotation is still 15 cents a gallon with a good consumption reported.

Gas Oil Unchanged

Gas oil prices have shown a notable measure of stability during recent weeks, and the market seems pegged at 5½ cents for 28 gravity or better oil at the refineries. With prices steady to strong at other refinery centers, it does not appear that there is anything on the horizon to suggest any undermining of the present price basis. While refiners are anticipating a seasonal falling off in consumption in the near future, demand has not yet tapered off to any extent, and withdrawals against contracts are still of large quantities. Refiners are still withholding offerings of 32-34 gravity gas oil, waiting to see just how extensive cracking operations may be during the summer months, and the higher gasoline market has had the effect of strengthening the refiners in their decision to hold this oil.

Fuel Oil Steady

Production and demand seem to be pretty well balanced at the moment, and the market is steady at $1.35 a barrel at refineries, and $1.41½ alongside in the harbor. There has been a good movement this week, and it is expected that the present rate of demand will continue. While no price advances are regarded as likely in East Coast markets, refiners look for a continuance of the present firm market.

California fuel oil is not seriously regarded just now as a factor in eastern markets. The differential between the markets here and on the Pacific Coast is not sufficiently large to permit the California oil to be moved eastward and sold at a profit, particularly so in view of the demonstrated willingness and ability of East Coast refiners to meet competition from this source if necessary.

Diesel oil has been without change this week, at $2 a barrel at refineries, with demand quiet.

Lubricating Oils

Aside from an advance of 1 cent a gallon on Pennsylvania bright stocks, the situation has not shown any radical change this week. Volume, in the aggregate, has been satisfactory, although refiners have found cause to complain of the spotty character of the demand at times.

Favorable weather conditions, making for an early start of the spring motoring season, has been paralleled by a heavy increase in consumption of automobile lubricating oils, and the sales departments of the various refiners and marketers have been concentrating on this end of the business for the past few weeks.

Industrial demand for lubs is still a cause of disappointment, and is slow to pick up. Traders expect that the 10 per cent wage reduction at the New Bedford cotton mills during the week will enable the mills to increase their operations, and that spindle and other textile oils will move better in consequence.

Notwithstanding the irregularity in lubricating oil demand, prices have been generally steady over the week, this being in line with the firmness prevailing at the refineries.

Petrolatum

Sales showed some increase in volume, and the market is in stronger position on practically all grades. Buying this week on lily white has been heavy, with the market quoted at 8¼ cents a pound, with snow white, at 9¼ cents, also meeting with a broader demand. Offerings of dark green at 2 cents continued limited, with the general market one-eighth cent over this figure. Extra amber at 3¾ cents a pound is strong, and 3⅞ cents is the market with most sellers on this grade, although the lower figure can still be worked. Export inquiry for petrolatum is more active, but the volume of actual buying is not yet as large as had been expected.

Paraffin Wax

Prices are much firmer, and while the amount of business is not heavy, it is of satisfying volume. Refiners are showing less inclination to shade their prices to meet buyers' bids, and the spot jobbing market has consequently firmed up. Most of the buying is prompt, little speculative trading being witnessed on any of the grades.

Spot stocks of 135-137 refined are still light, and it is doubtful if stocks can be had under 6⅛ cents a pound, with some sellers quoting 6¼ cents for prompt delivery. There is little around at any price at the moment. Other grades of refined are up one-quarter to one-eight cent for the week. There are a number of export inquiries in the market, which are expected to result in increased export sales during the coming week. Much of the export trade is being worked out of New Orleans and other southern ports at present.

Mineral Oil

Russian mineral oil is coming on the market in larger quantities, but prices are still firm at recent advances. Buyers who remained out of the market in expectation of a lower market when the temporary scarcity was at an end are being forced to come in and cover at the peak prices. Domestic medicinal oil sales are a little better, particularly on the higher grades.

Export Business Irregular

Conditions in the export market have been extremely "spotty" during the week. Inquiries have been fair, but there has not been any sustained buying movement, and the market has been backing and filling over the greater part of the period. One cargo of 6,000 tons of gasoline for France was booked this week.

Holland has been taking refined products in large quantities, shipments from New York for the week ending April 6 including a cargo of 1,580,000 gallons of refined petroleum on the "Manatawny" for Amsterdam, and one of 2,290,092 gallons of lubricating oil on the "Innoko" for Rotterdam.

France has been a good buyer of gasoline during recent weeks, and Spain has also been a heavy taker. Shipments to other points of the Continent have also held up well, although new buying did not attain the volume that was witnessed during the closing half of March.

Large shipments of paraffin wax have been going to the Far East in recent months, refiners building up their surplus stocks abroad, following the destruction of huge quantities of wax in a terminal fire in China some months ago. At last reports, the temporary shortage created by the fire had been more than made up in larger shipments abroad, with the Chinese market again well supplied.

Lubricating oil business has been rather irregular in export channels. Foreign buyers have been submitting inquiries and bids in an attempt to secure cheap offerings, but the buying movement has not yet attained any real momentum. In the final analysis, it appears that the export buyers are merely filling their day-to-day requirements, and nothing much beyond that.

More inquiry for petrolatum for export has come into the market in the past week, and sellers were showing somewhat stronger views on a number of grades, notably lily white and snow white, which have met with heavy buying over the past fortnight.

The advances in cased gasoline and kerosene for export, announced at the start of the week, had been anticipated in most quarters, the increases being in line with higher quotations in bulk markets.

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	April 6	Mar. 31	Mar. 24
Gasoline	592,500	2,938,626	304,260
Kerosene	527,000	245,350	326,490
Naphtha	295,000	456,550	63,000
Fuel oil (inc. Diesel)	3,298,220	4,750	16,800
Lubricating	5,500,094	1,583,408	1,418,814
Petroleum (ref.)	1,694,000	640,630	2,281,530
Petrolatum (lbs.)	165,792	51,619	53,763
Paraffin wax (lbs.)	5,548,415	2,584,680	.....
Refined	110,000	.....	339,360
Scale	1,520,228	118,200	469,762

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the month of March amounted to 1,161,000 bbls., a daily average of 37,452 bbls., compared with 1,892,000 bbls., a daily average of 65,241 bbls. for the previous month. Receipts during the week ending April 7 were 523,000 bbls., a daily average of 74,714 bbls., compared with 170,000 bbls., a daily average of 24,286 bbls., for the week ended March 31.

	Week ended
At Atlantic Coast ports—	April 7
Boston	70,000
New York	156,000
Philadelphia	297,000
Total	523,000
Daily average	74,714
Distribution of total California receipts is as follows:	
Gasoline	465,000
Lubricating oil	58,000
Total	523,000

Imports of Petroleum

Imports of crude and refined oils at the principal United States ports for the month of March were 7,670,000 bbls., a daily average of 247,419 bbls., compared with 6,315,000 bbls., a daily average of 217,758 bbls. for the previous month. Imports during the week ended April 7 amounted to 1,590,000 bbls., a daily average of 227,143 bbls., compared with 1,762,000 bbls., a daily average of 251,714 bbls., for the week ended March 31.

	Week ended
At Atlantic Coast ports—	April 7
New York	863,000
Philadelphia	292,000
Others	226,000
Total	1,381,000
Daily average	197,286
At Gulf Coast ports—	
Galveston district	80,000
New Orleans and Baton Rouge	129,000
Total	209,000
Daily average	29,857
At all United States ports—	
Total	1,590,000
Daily average	227,143

Applies Chemistry to Oil Problems

American Chemical Society Considers Practical Research for Refinery and Natural Gasoline Plant Operation

The subjects discussed before the petroleum division of the American Chemical Society during its meeting at St. Louis touched upon many phases of refinery and natural gasoline plant operation from a technical standpoint and suggest a practical application of new findings that will better utilize some of the products of the industry, allow for the more exacting design of equipment and much work was presented as a study of the characteristics of the present motor fuels with the thought of determining the most essential characteristic for their most economic use.

One of the problems confronting the natural gasoline industry is the economic utilization of the lighter fractions of the natural gasoline weathered off during the stabilization process. Robert N. Pease presented a paper outlining the conditions necessary to dissociate the hydrocarbons found in this fraction to make simpler gases which in turn may be used as fuel or a basis for chemical compounds.

Ethane, propane, n-butane and iso-butane are appreciably dissociated at 600 degrees-650 degrees Centigrade in times of the order of one minutes. The principal reactions are "demethanation," dehydrogenation, and, probably, for normal butane, "de-ethanation," giving rise to olefines. The reactions appear to be homogeneous, unimolecular gas reactions. The rates of dissociation increase as the molecule becomes larger. Normal butane and isobutane dissociate at nearly the same rate, but yield considerably different products, dehydrogenation accounting for about 50 per cent of the isobutane dissociated, and for only about 15 per cent of the normal butane. The results are consistent with the explanation that activation consists in a weakening of both carbon-carbon and carbon-hydrogen linkages, the ratio of products depending on the relative strengths of the two bonds.

The reaction:

$$C_2H_6 = C_2H_4 + H_2$$

is reversible in the region 550 degrees Centigrade-650 degrees Centigrade. Equilibrium corresponds to 17 per cent dissociation at 600 degrees Centigrade and 1 atm., and to 28 per cent dissociation at 650 degrees Centigrade and 1 atm.

Ethylene and acetylene polymerize rather than dissociate in the 600 degrees-650 degrees Centigrade range with heating times of a minute. A peculiarity of these reactions is that increased glass surface decreases the rate. This result is undoubtedly associated with the exothermic character of the reactions, similar results being obtained in hydrocarbon oxidation. The reactions are certainly not wall reactions. In particular, coating the wall with alumina or sodium hydroxide does not change the behavior of ethylene at 400 degrees Centigrade.

Oxidation of Hydrocarbons

The oxidation of the hydrocarbons above ethane is characterised by the fact that reaction may start abruptly as low as 300 degrees Centigrade, when the temperature is slowly raised, and nearly the whole of the oxygen is consumed. In the case of iso-butane, which has chiefly been studied, reducing the heating time to a second the starting temperature is raised above 400 degrees Centigrade, and reaction does not go to completion. In either case a "hot spot" develops about a centimeter from the entrance. The gases were preheated. When the pressure is reduced to a few millimeters, there is no reaction in one minute below 600 degrees Centigrade. Assuming that the reaction is a homogeneous, bimolecular reaction with a heat of activation of 50,000 cals., the pressure difference between the experiments at 400 degrees Centigrade and 600 degrees Centigrade accounts for the difference in reaction rate; that is, 400 degrees Centigrade and 1 atm. is about equivalent to 600 degrees Centigrade and 6.01 atm.

The products of oxidation at the lower temperatures are in part water, acids and aldehydes, and carbon monoxide, carbon dioxide, olefines and lower hydrocarbons. Usually more oxygen is consumed than hydrocarbon, but a complete checkup of entering and off-gas has not yet been made.

An interesting feature of these oxidations is that increasing the amount of surface by introduction of broken glass decreases the amount of reaction. The function of the glass may be in part to assist in carrying the heat of reaction to the walls. More, especially, however, it is thought that the glass takes care of the energy of "hot molecules" reducing these to the average and distributing the energy among many other molecules. The fact that increasing the surface slows the reaction is good evidence that the reaction takes place chiefly in the gas phase. Coating the surface with potassium chloride also decreases the rate, either by suppressing any wall reaction or by facilitating the loss of energy by "hot molecules."

Similar results are obtained with methane at 600 degrees-700 degrees Centigrade and with hydrogen at 550 degrees-650 degrees Centigrade.

A paper was presented on the same subject, prepared by Charles D. Hurd and LeRoy U. Spence. Their experiments showed that with a rate of flow which represents a hot-contact-time of about one minute (300-400 cubic centimeters per minute through a pyrex tube 30 inches by 1 inch), n-butane vapors are three-fourths decomposed by one passage at 700 degrees Centigrade, and are one-fifth pyrolyzed at 600 degrees Centigrade. Dehydrogenation reactions appear to the extent of 9 per cent in the former case, but are of slight magnitude in the latter. In both cases, the chief course of the reaction is one of scission into simpler paraffin and olefine hydrocarbons. Propylene is decidedly the dominant olefine at 600 degrees, whereas at 700 degrees the relative volumes of propylene and ethylene are nearly equal.

Isobutane is about seven-tenths decomposed at 700 degrees, and one-fourth at 600 degrees; therefore, the extent of decomposition of the two butanes at 600 degrees and 700 degrees is quite similar. Nearly half of the reaction of isobutane at 600 degrees is a dehydrogenation reaction into hydrogen and isobutylene, showing how fundamentally different is the course of pyrolysis of normal and isobutane. The scission reaction of isobutane into methane and propylene becomes more prominent at 700 degrees.

Effect of Electric Sparks

A study has been made by S. C. Lind and George Glockler to effect the reverse of the ideas in the papers outlined above, namely, the condensation of gaseous to liquid hydrocarbons and this was done by use of an electrical discharge.

For more than 50 years it has been known that gases undergo chemical change in electrical discharge even when there is no explosive reaction. The hydrocarbons react during a spark discharge, liberating hydrogen and methane and yielding liquid and sometimes solid products. The unsaturates react faster than the saturates and liberate less gas.

Until recently but little attention has been paid to the theory or mechanism of these reactions. Similar reactions take place in alpha radiation under conditions favorable to fundamental study. It has been found for all hydrocarbons examined (methane, ethane, propane, butane) with alpha rays that two molecules react per ion-pair, eliminating hydrogen or methane and forming higher gaseous and also liquid and sometimes solid members. The large variety of molecular species formed from one initial kind of low molecular weight, suggested that continued doubling, redoubling and "cross-breeding" takes place readily according to the general law—two molecules condensing for each one ionized. In the case of saturates, elimination of hydrogen or methane is necessary to furnish free bonds for doubling. For unsaturates this is not necessary, but some like action, nevertheless, does occur in ethylene. In acetylene, condensation is direct to solid (cuprene) with very slight liberation of hydrogen.

The object of the present work is to find whether the mechanism suggested for the alpha ray results seems applicable in electrical discharge. If due to ions, the reaction must be similar no matter how the ions are produced. One important criterion is unfortunately lacking; since one does not know the quantity of ionization produced in electrical discharge, the yield of products per ion-pair remains unknown. The indirect evidence obtained in reaction of ethane under silent discharge gives the following supports to an analogous mechanism: (1) Condensation to liquid hydrocarbons takes place. (2) Hydrogen and methane are produced and in approximately the same ratio $\left(\frac{5H_2}{1CH_4}\right)$ as under alpha radiation. (3) The liquid product has the same empirical formula $C_5H_{11.5}$.

Other types of electrical discharge such as alternating corona (metal to glass, metal to metal, and high frequency) give similar products. In the case of disruptive discharge, free carbon appears but not in silent discharge as in the ozonizer. A yellow solid is formed on the walls in semicorona Al rod discharge, which is quite inert.

Heavy Product Made

The first liquid obtained in the ozonizer type of apparatus was of high average molecular weight (467 and quite viscous with a terpentine-like odor. Since the liquid first condensed on the glass wall and was hence subjected to considerable secondary action of the discharge passing through it to reach the other electrode, and also since higher gaseous products returning to the discharge chamber with the circulating ethane were subjected to further doubling, two means were adopted to prevent this. (1) By warming the walls of the discharge chamber to about 70 degrees Centigrade to prevent initial condensation of liquid and (2) by inserting a cold trap (—50 degrees Centigrade) in the circuit to prevent return of gases condensible at that temperature. The molecular weight at once dropped from 467 to 180 and was later lowered in corona to 105, supporting the theory and showing a means of controlling the liquid product.

By starting with higher members, propane or butane, and operating a number of tubes in parallel it is expected to furnish liquid in sufficient quantity for fractionation and identification. A preliminary fractionation of a liquid of molecular weight of about 130 gave a heavy fraction of 182 and a lower one of 81.

The economics of the process do not appear favorable for obtaining liquid hydrocarbons for combustion purposes. The work of ionization appears too great per yield of liquid unless products of unusual value are obtained in this way. It is reported that efforts are being made in Germany to produce lubricating oil by means of brush discharge.

Stuart M. Roger and Linden R. Adkins presented a paper and described a new type of viscosimeter for petroleum products of the same general proportions of the Saybolt Universal but requiring less than 10 cc. sample. The outside dimensions are such that it can be placed in the usual Saybolt barrel in either a hot or cold bath.

Volatility Discussed

Considerable discussion resulted from papers presented on the volatility of motor fuels with respect to their performance in the internal combustion motor. O. C. Bridgeman presented a paper outlining work done at the Bureau of Standards at Washington on this subject.

Gasoline was vaporized by a dynamic method in the presence of known amounts of air at temperatures permitting successive approach to complete vaporization. For each mixture and gasoline, the temperature percentage evaporated curve extrapolated to 100 per cent gave the dew point temperature. These equilibrium distillation values agreed well with values obtained by the method of Stevenson and Babor and with the results of these investigators. The dew-point temperatures at 1 atmospheric pressure, of gasoline vapor and of mixtures from 1-1 to 30-1 were found to be simply related to the 90 per cent A.S.T.M. points, corrected for loss, and to each other.

The relation of volatility and antiknock value of different motor fuels have been studied by J. C. Geniesse and H. F. Huf and a paper was presented on the subject.

A paper delivered by M. Garcia on "Heat Transfer in Oils Flowing Through Pipes" included new ideas regarding the design of exchanger equipment.

The equations generally used to determine mean temperature differences and heat transfer coefficients in heat exchange equipment are based on the assumptions of constant specific heat and constant heat transfer coefficient throughout the temperature range. These factors, however, vary with the liquid temperature, and in the case of petroleum oils, the variation is sometimes so considerable as to make the use of the mean temperature difference wholly unjustified on theoretical grounds.

Differential equations have been derived for heat transfer in viscous liquids, taking into account the change in physical properties of the liquid with temperature. Graphical integration of these equations give true mean liquid temperatures, from which mean temperature differences and heat transfer coefficients may then be calculated.

Mean liquid temperatures obtained by this method differ considerably from those given by the logarithmic mean formula and shows a totally different law of temperature distribution along the exchanger.

Graphical methods are given for the calculation of mean liquid temperatures, to be used for the correlation of experimental data or the design of exchangers for viscous oils involving large temperature ranges.

Analytical Determinations

A method for the determination of aromatic and olefins in hydrocarbons has been worked out by Dr. W. F. Faragher, Dr. J. C. Morrell and I. M. Levine and was presented and consisted of two steps:

(a) The sum of the concentration of olefins and aromatics are determined by means of sulphuric acid.

(b) The olefins are removed by means of sulphuric monochloride and the aromatics determined by nitration in the olefin-free oil. The olefin content is obtained by difference.

In (a) the oil is treated with approximately 91 per cent sulphuric acid, distilled to remove the polymers and the

olefin-aromatic condensation products, and finally treated with 98 per cent sulphuric acid which dissolves or reacts with the small quantity of olefins and aromatics remaining in the oil. The total material removed in these three steps represents the combined olefin and aromatic content.

In (b) the oil is treated with sulphur mono-chloride at room temperature and the reaction is allowed to proceed for several hours, preferably over night. The treated oil is subjected to atmospheric and vacuum distillation and the distillate so obtained is substantially olefin-free. The aromatic hydrocarbons are determined in the distillate by a modified Hess method which consists of nitration and solution of the nitro products in approximately 95 per cent sulphuric acid. The undissolved oil is then measured

A rapid and fairly active method for the determination of olefins is also proposed. It consists of the titration of the oil directly with a solution of bromine in an organic solvent, e.g., carbon tetrachloride, until a definite though arbitrary endpoint is reached. Under the same conditions a standard solution which contains a known quantity of a single olefin or mixture of olefins is also titrated. The volume percentage of olefins in the oil is calculated on the basis that the quantity of bromide used is a linear function of the olefin content. Limonene, a diolefin, behaves normally, that is, the titration shows that it has two olefin bonds. The bromide titration method is limited but has many useful applications.

A chart showing the vapor pressure of low-boiling hydrocarbons was shown by Dr. G. G. Brown and H. B. Coats of the University of Michigan in connection with the work done in the analysis of natural gasolines.

Other very interesting papers were presented on the refining of shale to make shale oil products. Two of these were presented by Robert A. Baxter.

SNOWS AND RAINS HIT CHICAGO MARKET

(Continued from Page 140)

stances were run from West Texas or other crudes in sulphur and had a pronounced odor. Several refiners stated last week that while they had some straight run gas oil in their storage they were not selling any but were holding it for their own needs when the gasoline demand warranted them in starting their own cracking plants. Of course some refineries are running their cracking plants right along and in some cases the management has claimed that it made money by so doing but in each of these cases the concern had a distribution so large that when the gasoline consumption was high it had to buy for its stations and only had a surplus in the dull periods and then not a large one. Refineries running on West Texas crudes are stated to run less gas oil and what they do run is not as desirable as the product of the Oklahoma crudes so that the Oklahoma gas oil market is favored by conditions at present.

Fuel Oil Unchanged

Fuel oil showed practically no change last week. There were no really large inquiries, several received from steel and forging companies being for immediate consumption and not for periods. Generally there was a resumption of hand-to-mouth buying by those not supplied through contracts. Takings by railroads on spot were stated by some sources to be less. This did not refer to takings on contracts but to purchases made in the spot market.

Right now the quantity of fuel oil consumed is large and there is little reasonable complaint of the demand. The low cost of fuel oil has held the business of those who might have changed to coal and has increased the number of oil users. There is a feeling that the market is, it might be said, threatened with an excessive supply. There is a fairly large quantity of Oklahoma fuel oil available, according to oil men who have been through the field recently.

There is the threat of large supplies of West Texas fuel oil. Smackover fuel is being offered more freely and at competing prices with other fuels in its class. If, as government reports show, the refineries in the districts where West Texas and Venezuelan crude are freely available at low cost are running more crude and cutting less gasoline and kerosene and refiners say less gas oil, then these refineries must have a corresponding increase in the fuel oil produced at these plants. A large Group 3 refiner said last week he believed the East Coast and the Gulf territory would be flooded with this fuel oil. Some of this crude is being pipelined to refineries as far west as western Pennsylvania and the fact may be dependent in part on the good fuel oil market in eastern Ohio and western Pennsylvania. Objections to the character of fuel oils from these crudes are made but there is the answer that thousands of cars of fuel oil refined from West Texas crude have been sold in this section during the winter and that contracts are being offered today for this fuel oil to run until June, 1929, at 90 cents per barrel. Some of these contracts have been signed and others are considering them. With more refineries operating on this grade of crude there will be more of the fuel oil to be sold in competition with the product of the refineries that run on other kinds of crude such as Mid-Continent and Central States crudes. The sellers who have been pushing the sale of these West Texas fuel oils say they are sold exactly for what they are. Buyers know they contain much sulphur and that the odor is unpleasant, to put it mildly, but that the buyers find the oils desirable from their low pour test, low viscosity and low flash and are able to burn them easily. There are many industrial uses for which these oils are not fitted but there are many users who want large volumes of heat who can and have used them with entire satisfaction. Apparently there are a number of additional refineries to be operated in the West Texas area and, according to present results, they will all have more fuel oil than anything else to sell.

A surplus of any kind of petroleum product, be it crude or gasoline, always finds a market somewhere these days. A few years ago a surplus of gasoline in California cut badly into the sales of Mid-Continent refiners and this fuel oil if produced will find a market and take the place of other fuels somewhere. Just where this will be and just when is the matter to be decided in time but right now the condition constitutes a real factor in the present fuel oil market. There was little change in quotations last week, refiners holding their prices at their former level. More free offerings were made by some refiners and others reported they were sold up and advanced their quotations. The thought of the market was that the buying of fuel oil for heating purposes was about through for this season and the buying from now on would be almost entirely for industrial uses and this would mean some difference in the demand.

Lubs Steady

Lubricating oils are moving steadily to the dealers and there is a very good business reported in motor oils. Compounders are still drawing heavily on contracts with refiners for various stocks. The industrial demand is very fair right now. So far there has been no change in prices and many reports are made of low quotations and of contracts very favorable to large buyers. The Midwest Refining Co. is preparing to put out a line of oils and greases under its own brand to be sold through a string of companies through the Rocky Mountain States.

Tank Wagon Scale

There has been no general change in the tank wagon scale over the territory; what changes there have been are local adjustments usually to normal where prices have been reduced. The territory as a whole is in a much better condition than it was last year. There are fewer points where the price is below normal and these are usually not important places. The dealer who sells the public from his bulk plant, usually at the tank wagon price, is still active in some sections but the number does not seem to be on the increase and regular dealers are in many points holding their price and not reducing their income by cutting the price over an entire city, usually without securing the desired end which is to take away the business of the bulk station retailer. A better understanding of the merchandising principles would help the oil men in some localities to understand that a low price is not always a good selling argument and that a higher if not excessive price is very often accepted by buyers as a proof of quality and is therefore a good sales argument.

There have been quite a crop of rumors of tank wagon advances and of a discontinuance of the Q.D.A. Of the former there is no present indication and little more of any change being made by the larger companies in their system of quantity discounts The Wisconsin Bureau of Markets is advocating that the small buyers organize buying clubs and in this way make the discount for quantity system too popular. This would be along the line of the idea that the best way to secure a repeal of an unpopular law is to enforce it. The idea of the Bureau of Markets seemed to be that groups of 5 or 10 car owners would use at least 200 gallons of gasoline per month and that by combining their purchases with one oil company they would be able to secure the discount to which buyers of that quantity were entitled. With every buyer securing the maximum discount or the minimum price, the bureau believes that the discount system would soon be very unpopular with the oil companies. Locally the publication of the Federation of Labor is issuing cards of membership in an organization known as the Associated Buyers. This card is issued to subscribers who pay $3 for an annual subscription. Among the advantages claimed for membership in the organization is a special discount on many products of daily use. Among these it was stated was a discount of 1½ cents per gallon on gasoline at any station of an oil company not named in the announcement which has "over 100 filling stations in Chicago and its immediate suburbs." The name of this company is revealed only to subscribers who have paid for their subscription in advance, it was stated. It might be worth the price of the subscription to know the name of the company even if the subscriber had no use for the card of membership.

PRORATION IS ASSURED FOR HENDRICKS POOL

(Continued from Page 35)

Worth, Texon Oil & Land Co., that the commission investigate the conditions in Howard County.

Following adjournment the commission held a brief meeting with the Committee of Seven appointed several weeks ago to attempt to bring operators into a proration agreement.

The commission expected to make its order within the next 5 or 10 days.

Those attending the meeting included:

Adair, H. J., Wichita Falls, Oil and Gas Bureau.
Allen, E. G., Dallas, Roxana Petroleum Corp.
Andrews, E. E., Abilene.
Barrows, L. E., Fort Worth, The Texas Company, Houston.
Batts, R. L., Austin, University of Texas.
Behnke, Arno, Fort Worth, Amerada Petroleum Corp.
Blum, E. H., Dallas, Atlantic Oil Producing Co.
Champion, J. F., Ranger, Prairie Oil & Gas Co.
Clark, Warner, Colorado, Tex., California Co.
Collett, J. D., Fort Worth.
Corcoran, H. J., Fort Worth, Marland interests.
Cranfill, Tom E., Dallas, Cranfill & Reynolds.
Cummins, R. H., Fort Worth, Marland Employes Royalty Co.
Cunningham, Colorado, Tex., California Co.
Daly, U. de B., St. Louis, Mo., Roxana Petroleum Corp. and Shell Pipe Line Co.
Dameron, J. E., Fort Worth, The Oil and Gas Journal.
Dudley, Ray, Houston, Oil Weekly.
Elkins, J. A., Houston, Pure Oil Co., Fort Worth.
Farish, W. S., Houston, Humble Oil & Refining Co.
Franklin, W. C., Tulsa, Okla., Tidal Oil Co.
Hamilton, W. B., Wichita Falls, West Texas Chamber of Commerce.
Hardin, Sheldon, Shreveport, La., Southern Crude Oil Purchasing Co.
Harmon, I. G., Ponca City, Okla., Marland Production Co.
Herndon, C. C., Tulsa, Okla., Skelly Oil Co.
Hesterly, James H., Shreveport, La., Louisiana Oil Refining Corp.
Howe, R. W., Dallas, Atlantic Pipe Line Co.
Hull, B. E., Houston, Texas Pipe Line Co.
Landreth, E. A., Fort Worth, Landreth Production Corp.
Laney, J. P., Dallas, Mid-Continent Oil & Gas Corp.
Lewis, W. T., Fort Worth, Llano Oil Co.
Lockwood, C. D., Fort Worth, Lockwood Texas Oil Report.
Lombardi, M. E., Colorado, Tex., California Co., San Francisco, Calif.
Moncrief, W. A., Fort Worth, Marland Producing Co.
Marland, G. R., Ponca City, Okla., Marland Oil Co.
Moore, E. H., Tulsa, Okla., Independent Oil & Gas Co.
Moran, D. J., 17 Battery Place, New York, The Texas Company.
Nichols, R. V., Austin, Attorney General's Department.
Oliver, Earl, Ponca City, Okla., Earl Oliver & Co.
Peake, A. W., Shreveport, La., Dixie Oil Co.
Pickrell, Frank T., Fort Worth, Texon Oil & Land Co.
Pogue, Joseph E., 42 West Twelfth Street, New York, consulting engineer.
Proctor, D. C., Fort Worth, Gulf companies.
Pyron, W. B., Houston, Gulf Production Co.
Richardson, D. A., Oklahoma City, Okla., Marland Producing Co.
Reynolds, J. H., Cisco, Tex., Cranfill & Reynolds.
Rinehart, Ira, Fort Worth, Ira Rinehart Oil Report.
John, Robert A., Houston, The Texas Company.
SoRelle, B. S., Fort Worth, Pure Oil Co.
Stephens, B. H., Dallas, Magnolia Petroleum Co.
Suman, John R., Houston, Humble Oil & Refining Co.
Sutro, Oscar, San Francisco, Calif., California Co.
Sutton, William B., Houston, Vacuum Oil Co.
Townes, E. E., Houston, Humble Oil & Refining Co.
Trickey, J. H., Fort Worth, Llano Oil Co.
Vinson, William A., Houston, Prairie Oil & Gas Co.
Waggner, Paul, Houston, National Petroleum News.
Westbrook, R. A., Fort Worth, Westbrook-Thompson Holding Corp.
Wharton, C. R., Houston, Marland Oil Co.
Wiess, H. C., Houston, Humble Oil & Refining Co.
Young, John L., Dallas, Atlantic Oil Producing Co.

COMPETITION AS AGAINST POLICY OF CONSERVATION

(Continued from Page 36)

would furnish anything like a cure for the present malady. If the principal units of the industry will work together where they can and not delay in the hope or thought of getting together where they cannot, something worth while may be accomplished before it is too late.

There probably has never been a time in the history of the country when the executive branches of the national and state governments have realized so fully as now the fact that the welfare of the Nation depends on the welfare and prosperity of industry, and certainly no time when the public has been so largely interested, directly and indirectly, in such as owners and as consumers of the products of industry. This is particularly evidenced in the better understanding and greater interest, aid and support by the Department of Commerce, the Department of Justice, the Federal Trade Commission and others. The Conservation Board, as well, has shown every disposition to give aid in this important matter if given an opportunity.

GULF COAST MARKET HAS GOOD MOVEMENT

HOUSTON, Tex., Apr. 16.—A general shortage of 500 viscosity red oils developed in the Gulf Coast refinery market during the week. While all other lubricating stocks were firm the 500 red was the only grade not readily available. There has been an excellent movement of both the 500 and 750 viscosity oils for the past month due to seasonal demand which has been reflected in rapid depletion of stocks. A cargo of 500 red oil was lifted Tuesday which virtually eliminated the last source of this material.

Several substantial inquiries for both domestic and bulk movement of stocks were received Monday and Tuesday but these so far have not been filled. This week there have been no additional price changes with the structure on all grades except the 500 and 750 oils being just firm. Gas oils and fuel were unchanged and very little additional demand was in sight Tuesday.

Brief Items for Petroleum Refiners

PURE OIL INSTALLS GYRO PROCESS UNITS

The Pure Oil Co. is installing three 1,000-bbl. Gyro process cracking units at its Smith Bluff, Tex., refinery. The work has progressed well but no date has been set for their operation. This installation will be very similar to that company's installation at the 'Cabin Creek, Ky., refinery where the company's first units were installed and perfected. The process has been known for many years but has come into prominence since the demand for gasoline of relatively high antiknock value has increased. The Gyro process is essentially a vapor phase cracking process and uses gas oil as a charging stock. The details of the process as it is being operated at the Cabin Creek plant were included in the March 1 issue of The Oil and Gas Journal.

ODD CONDITIONS MET IN INA FIELD PLANT

SAN ANTONIO, Tex., Apr. 14.—The Golden West Oil Co.'s 200-bbl. refinery that is being built in the Ina Field in Medina County, Texas, will be unique in several respects. Ina Field was discovered three years ago but the crude contains such a large percentage of asphaltum and is so viscous at atmospheric temperatures it has not been refined. It has been very difficult to transport by pipe line also and for that reason it was decided to refine it in the field.

The crude yields 60 per cent lub, 15 per cent gas oil, and the remaining 25 per cent is asphalt, fuel oil and loss. A recent refinery test shows no gasoline. The lub oil made has a viscosity of 330, with a cold test of 20 and a color of 2½ N.P.A. V. D. Rathbone who gained his experience in refining in the Pennsylvania and West Virginia districts has been secured as superintendent of the refinery and is now on the ground and will be in charge of the erection and operation.

KANSAS ASSOCIATION TO MEET AT WICHITA

The Kansas Oil Men's Association will hold its fourteenth annual convention on April 26 and 27 at the Hotel Lassen in Wichita, Kans. Secretary J. A. Motter has prepared an interesting list of subjects to be discussed, listed as follows: The Kansas Road Program; New Story of Petroleum; Eight-Reel Moving Picture; Refining of Lubricating Oils; Do Oil Men Want an Increase in the Gasoline Tax? The Relation Between the Independent Refiner and the Independent Jobbers; The New S.A.E. Viscosity Numbers; Some World Phases of the Oil Industry; Credit and Collections. Entertainment will be provided for the evenings.

REFINERY EMPLOYMENT

Employment in petroleum refineries continued to decrease during February, according to the United States Department of Labor, but the decrease was slight and with the industry facing a period of higher consumption of its products and better prices the trend may be expected to change.

Employment during February decreased .2 per cent compared with January and the payroll decreased .4 per cent. When comparing the status of employment this February with that of last year a decrease over the year amounting to 18.2 has occurred in the number of men employed and a decrease in the payroll of 18.5 per cent.

WILL OPERATE HUMBOLDT PLANT

HUMBOLDT, Kans., Apr. 14.—J. J. and M. Taxman, owners of the refinery at Humboldt, Kans., formerly owned by the Miller Petroleum Co., plan to resume operation of the plant at an early date. Arrangements are now being made for a crude supply.

MOTOR REGISTRATIONS INCREASED 5.1 PER CENT

By Charles E. Kern

WASHINGTON, D. C., Apr. 14.—Motor vehicles of all kinds registered during 1927 totaled 23,127,315, of which 20,230,429 were passenger cars, and 2,896,886 were motor trucks and road tractors, and 120,303 were motorcycles.

This total registration compares with 22,001,393 registered in 1926, an increase of 1,125,922 or 5.1 per cent, according to United States Bureau of Public Roads.

The largest per cent of increase in registration was in North Carolina, where it was 11.8 per cent. South Carolina was second with an increase of 10.2 per cent; Utah third with an increase of 10.1 per cent. The smallest increases were in the District of Columbia, 0.2 per cent; Oklahoma, 0.6 of 1 per cent, and Massachusetts, 0.7 per cent increase in 1927 over 1926.

Of the entire number of motor cars, 33,179 were tax exempt belonging to the United States, and 101,689 were state and local cars, there being 4,056 official motorcycles.

The total gross receipts from registration amounted to $301,061,132, of which motor car receipts accounted for $239,515, 394.

Of this total, $14,876,410 was expended for collection and administration costs, $189,985,289 for state highways, $53,089,598 for local roads, $36,087,568 for state and county road bonds, and $4,533,942 "for other purposes."

The details of registrations follow:

1927 Registered Motor Vehicles, Individually and Commercially Owned

States and District of Columbia	Grand total registered motor cars and trucks	Passenger automobiles, taxis and buses	Motor trucks and road tractors
Alabama	243,539	211,633	31,906
Arizona	81,047	79,802	1,245
Arkansas	206,568	174,524	32,044
California	1,693,195	1,479,411	213,784
Colorado	288,493	245,107	23,386
Connecticut	281,531	238,509	43,012
Delaware	47,124	38,037	9,087
Florida	394,734	332,979	61,755
Georgia	300,635	262,630	38,005
Idaho	101,336	91,306	10,030
Illinois	1,438,985	1,254,421	184,564
Indiana	813,637	697,359	116,278
Iowa	704,203	649,309	54,894
Kansas	501,901	447,273	54,628
Kentucky	285,621	255,892	29,729
Louisiana	255,000	216,000	39,000
Maine	163,623	132,927	30,696
Maryland	270,935	265,768	5,167
Massachusetts	694,107	614,359	79,748
Michigan	1,154,773	998,781	155,992
Minnesota	646,682	565,401	81,281
Mississippi	213,043	196,239	21,804
Missouri	682,419	610,303	72,116
Montana	112,735	94,733	18,002
Nebraska	373,912	342,357	31,555
Nevada	25,776	20,414	5,362
N. Hampshire	96,009	83,415	12,594
New Jersey	712,396	586,510	125,886
New Mexico	59,291	57,643	1,648
New York	1,937,918	1,624,535	313,383
North Carolina	430,499	390,223	40,276
North Dakota	160,701	144,830	15,871
Ohio	1,570,734	1,374,402	196,332
Oklahoma	503,126	437,776	65,350
Oregon	244,572	223,582	20,990
Pennsylvania	1,554,915	1,354,548	200,367
Rhode Island	113,014	93,861	19,153
S. Carolina	199,635	179,571	20,064
S. Dakota	169,552	153,019	16,533
Tennessee	294,567	269,086	25,481
Texas	1,111,407	996,397	115,010
Utah	93,976	80,731	13,245
Vermont	79,527	73,308	6,219
Virginia	337,607	288,666	48,941
Washington	384,583	326,667	57,916
W. Virginia	245,819	217,689	28,130
Wisconsin	698,289	609,795	88,494
Wyoming	51,955	45,539	6,416
Dist. of Col.	111,680	98,162	13,518
Total	23,127,315	20,230,429	2,896,886

CITIES SERVICE EXTENDS BRITISH MARKETING

The Cities Service Co. is extending its distribution of petroleum products in England through the purchase of many gasoline pumps and five tank trucks. At present the company is operating 24 trucks, 31 tank cars, 9 bulk stations and many retail stations. The products are being distributed under the registered name "Citex."

The increased use of pumps and the increased distribution of oil by trucks is gradually placing marketing conditions in England comparable with those in the United States. The importation of American equipment into many European countries has become general and marketing companies are expecting to share to a large extent in the expected development there in the increased use of petroleum products.

STOLL BUYS STATIONS FROM MID-CONTINENT

The Stoll Oil Refining Co. has purchased four stations in Kentucky from the Mid-Continent Petroleum Corp. These stations were part of a group purchased more than a year ago by the Mid-Continent from the Blackhawk Oil Co. They are located at Paris, Versailles, Nicholasville and Georgetown and will fit in well with the marketing organization of the Stoll Oil Co., which operates many stations in that section. Freight rates have been comparatively high from the Mid-Continent refinery to these points. These points are also out of the general marketing territory of that company. These reasons were given as the basis of the sale.

A. F. HICKEY ACTIVE AGAIN

CHICAGO, Apr. 14.—A. F. Hickey, one of the most widely known oil men of the city and West, has completely recovered from his illness which prevented him from active participation in the oil business for nearly a year. He has taken charge of the gasoline and light oil department of the Industrial Petroleum Corporation., of Illinois of which Tom Collins is the president. The company has specialized in fuel oils but plans in the future to be active in the sale of lighter products. Mr. Hickey was one of the founders and the first secretary of the old Riverside Oil Co., of Pittsburgh, Pa. Coming to this city he became sales manager for the Johnson Oil & Refining Co. His last active connection was as vice president and assistant general sales manager of the Cosden Sales Corp.

REFUND LAW INVALID

MADISON, Wis., Apr. 14.—The attorney general of Wisconsin has made a ruling that the tax refund law passed at the last session of the Wisconsin legislature is unconstitutional. The law authorized the State to refund gasoline taxes paid by dealers in the State who were obliged to meet the price of dealers in points across the border in states where there was no tax on gasoline or a lesser tax than in Wisconsin. The attorney general ruled that the law would be no protection to the state treasurer or his bondsmen in case the tax were refunded. This decision follows a recent ruling that every dealer must pay the tax and apply for a refund. This ruling was made in the case of the Valvoline Oil Co., which operates a station in Beloit, Wis., and competes with dealers in South Beloit, which is in Illinois where there is no tax on the sale of gasoline.

H. L. DEMING RESIGNS

CHICAGO, Apr. 14.—Announcement has been made of the resignation on April 1 of H. L. Deming as general manager of the Lincoln Oil Refining Co. at Robinson, Ill. It was stated that a selection of his successor had not been made.

I.O.M.A. DISCONTINUES REFINERY SALES DEPT.

CHICAGO, Apr. 17.—At the meeting of the trustees of the Independent Oil Men of America it was decided to discontinue the refinery sales department on May 1. Eight refining organizations are now members, the latest additions being the Pennsylvania Refining Co. of Karns City, Pa., and the Deepwater Oil Refineries of Houston, Tex. It was proposed to establish a department of trade practices and C. L. Maguire was appointed chairman of a committee to outline a plan to report at the next meeting of the trustees on May 15.

A questionnaire will be issued to the members asking for suggestions for a strong sales campaign. The management stated that various plans for increased efficiency had been adopted which in some cases would cause a considerable saving in expense. Lou Harrington, executive manager, leaves tonight on an extensive western trip during which he will attend the state meetings of the Kansas and Nebraska oil men.

ROXANA DISTRIBUTION

KANSAS CITY, Mo., Apr. 14.—The Arrow Oil Corp. has been appointed distributor in Kansas City for the Roxana products. This will place 30 stations scattered throughout the city as distributing points for these products.

ADOPT UNIFORM COLOR SCHEME

CHICAGO, Apr. 14.—The Wisconsin members of the Independent Oil Men of America have adopted a uniform color scheme with the view of more fully identifying the members of the organization to the public. At the annual meeting of the organization held in this city last March the plan of a uniform color scheme was suggested and approved. Members' stations are identified through the display of the emblems of the organization but the uniform color will not only increase the identification of the stations but will be used on all trucks, automobiles and outside property of the owners giving a wider publicity to the membership. The colors adopted by the Wisconsin members are orange with a green trim.

MIDWEST CO. TO DISTRIBUTE

The Midwest Refining Co. makes the announcement that beginning April 20, it will market its own products through a string of stations located throughout the Rocky Mountain states. The line will include a full assortment of lubricating oils and greases which will be sold in containers bearing the name of the Midwest Refining Co.

MORE STILLS AT M'CAMEY

The Humble Oil & Refining Co. is installing three return-tube shell stills at its McCamey, Tex., refinery which will increase the capacity of the plant to approximately 21,000 bbls. A new acid recovery system is also under construction at this plant.

Natural Gasoline Manufacture

CAPACITY OF NATURAL GASOLINE PLANTS IN U. S. SHOWS INCREASE

There were 1,555 natural gasoline plants in the United States on January 1, 1928, according to a survey made by the United States Bureau of Mines, Department of Commerce. Of the total plants, 1,060, or 92 per cent, were in operation on January 1, leaving 95, or 8 per cent, inoperative. The total number of plants had an indicated capacity of 8,048,000 gallons per day, of which only 294,000 gallons, or 4 per cent, was shut down on January 1.

Oklahoma is by far the leading State in number of natural-gasoline plants, with a total of 331, followed by California, Texas and Pennsylvania, closely grouped. Oklahoma is also first in total capacity, followed by California and Texas. The difference in size of plants as between the older producing districts and the more recent fields is illustrated by the fact that Pennsylvania, with a total of 153 plants, has a total capacity of only 131,000 gallons as compared with 157 plants of 1,677,000 gallons total capacity in Texas. In addition to the states named, plants were located in Arkansas, Colorado, Illinois, Kansas, Kentucky, Louisiana, New Mexico, Ohio, West Virginia and Wyoming.

The popularity of the absorption method of extracting natural gasoline is very apparent; a total of 526 plants, with a total capacity of 5,476,000 gallons, use the process, whereas 497 plants, with a total capacity of only 1,398,000 gallons, use the compression process. A total of 105 plants use a combination of processes, principally a combination of the compression and absorption processes; and 27 plants, of a total capacity of 214,000 gallons, use the charcoal process.

Despite a general decline in natural-gasoline prices during the past few years, the number of gasoline plants has increased. This apparent paradox is due to a number of reasons, such as reduced costs and greater efficiency in operation, to an increase in number of portable plants, or, in general, new plants built to keep abreast of the rapid expansion in crude petroleum production. While the number of plants is increased, the number of operators has declined, showing a tendency to centralization as a cost-reducing factor.

RECAPITULATION BY STATES—JANUARY 1, 1928

Number

State—	Operating	Shut Down	Total	Absorption	Compression	Combination	Charcoal
Arkansas	14	4	18	11	3	3	1
California	141	18	159	109	4	45	1
Colorado	1	....	1	1	....	....	....
Illinois	76	2	78	....	78	....	....
Kansas	23	....	23	14	8	1	....
Kentucky	11	1	12	5	4	....	3
Louisiana	45	3	48	30	11	5	2
New Mexico	1	....	1	1	....	....	....
New York	3	1	4	2	1	1	....
Ohio	33	4	37	15	20	....	2
Oklahoma	302	29	331	165	137	29	....
Pennsylvania	138	15	153	20	121	8	4
Texas	146	11	157	105	41	8	3
West Virginia	117	7	124	42	66	5	11
Wyoming	9	....	9	6	3	....	....
Total	1,060	95	1,155	526	497	105	27

Capacity (thousands of gallons per day)

State—	Operating	Shut Down	Total	Absorption	Compression	Combination	Charcoal
Alaska	124	9	133	89	4	35	5
California	2,099	83	2,182	1,641	24	460	57
Colorado	1	....	1	1	....	....	....
Illinois	57	1	58	....	58	....	....
Kansas	164	....	164	113	41	10	....
Kentucky	57	1	58	46	7	....	5
Louisiana	262	16	278	214	36	21	7
New Mexico	10	....	10	10	....	....	....
New York	2	1	3	2	1	....	....
Ohio	56	3	59	47	4	....	8
Oklahoma	2,663	96	2,759	1,629	769	361	....
Pennsylvania	122	9	131	55	33	31	12
Texas	1,624	53	1,677	1,331	306	20	20
West Virginia	384	22	406	244	40	22	100
Wyoming	129	....	129	54	75	....	....
Total	7,754	294	8,048	5,476	1,398	960	214

DETAILS OF PROGRAM FOR GASOLINE MEETING

A. V. Bourque, secretary of the Natural Gasoline Association of America, has announced the names of those who will preside and lead the discussion of the papers during the various sessions of the association's convention in Tulsa on May 22, 23 and 24. During the first morning session F. L. Chase, general manager of the Lone Star Gasoline Co. will act as chairman. The discussion of the paper on the "Theory and Practice of Automatic Control" by T. G. Laney of the Fisher Governor Co. will be led by W. A. Melton, general superintendent of the gasoline plants of the Shaffer Oil & Refining Co. E. L. Peck, manager of the Empire Gasoline Co., will preside during the first afternoon session, while G. G. Oberfell, in charge of research for the Phillips Petroleum Co., will lead the discussion of the paper on "Theory and Practice of Rectification in Natural Gasoline Plants" by L. S. Gregory, consulting engineer.

During the night session, to be held the first day of the meeting, G. L. Ratcliffe, general superintendent of plants for the General Petroleum Corp., will be chairman and a general discussion of Dr. G. G. Brown's report on the work of the research department of the association will be held from the floor.

Wednesday morning Emby Kaye, general superintendent of gasoline plants of the Skelly Oil Co., will act as chairman and the discussion of G. G. Oberfell's paper on the "Volatility of Natural Gasoline" will be led by S. C. Carney of the Roxana Petroleum Corp. The second paper for the morning, "Gas Lift and Repressuring and Their Relation to the Natural Gasoline Industry," by H. B. Bernard, vice president of the Sinclair Oil & Gas Co., will be discussed with G. M. Davidson, general superintendent of the Empire Gasoline Co., leading the discussion.

The afternoon session of the second day will be presided over by Dr. E. R. Lederer, vice president of the Texas Pacific Coal & Oil Co., during which a paper on "Methods of Marketing," by W. T. Anderson, associate editor of The Oil and Gas Journal, will be discussed by D. E. Buchanan, vice president of the Chestnut & Smith Corp. The second paper of the afternoon will be prepared and read by W. W. Robinson, Jr., of the California Gasoline Co. on the "Importance of Gas and Gasoline Analysis to the Natural Gasoline Industry." George P. Bunn, assistant general superintendent of the Phillips Petroleum Co., will lead the discussion.

NATURAL GASOLINE IN SEMINOLE DECREASES

The net production of natural gasoline has declined materially over the last month and the peak is undoubtedly past. At present the daily average net production in tank cars is 689,500 gallons and is about 125,000 gallons less than it was on March 1. Despite this decrease, operators in the field see a continued high rate of production as in most cases the productivity of the field has been maintained considerably above that expected. Very few new connections have been made and considering the effect of warmer weather in cutting down the net production the Seminole Field could not be said to be on the toboggan. There might be a little flurry in production at such a time as drilling restrictions are removed and additional plants could be expected should the field be extended. The increased production that would result, however, is not likely to come for many months and this factor could not stand in the way of better prices which seem certain over the next few weeks.

Another factor that has been conducive to lower volume production is the manufacturing of the A and AA grades in plants formerly making C and BB grades. As the summer season is entered refiners are demanding the more stabilized grades for blending in order to hold refinery evaporation losses and tank car outages to a minimum and except in those cases where the natural gasoline is being blended for immediate consumption, the low-recovery grades are not purchased.

Some plants have shown a small increase in production without new connections and as the drilling activities are discounted and the crude production settles down to a uniform operating basis, the gasoline plants are better able to assume a uniform operating schedule and the result is increased efficiency and a higher recovery.

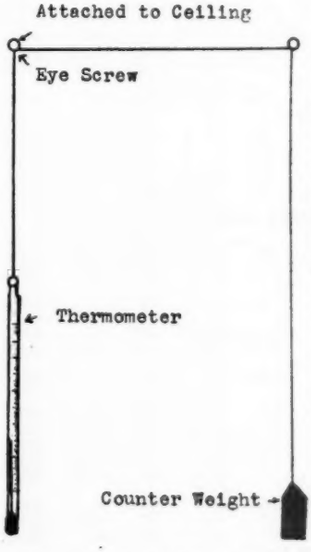
The companies operating natural gasoline plants in the Seminole Field are shown below. The natural gasoline production appearing opposite represents the present average daily net volume.

Present Net Natural Gasoline Production in the Seminole Field	Gallons Daily
Amerada Petroleum Corp.	28,000
Barnsdall Oil Co.	30,000
Carter Oil Co.	100,000
Crosbie Oil Co.	9,000
Empire Gasoline Co.	118,500
Forrest E. Gilmore Co.	17,000
Gypsy Oil Co.	5,000
Independent Oil & Gas Co.	13,500
Magnolia Petroleum Co.	11,000
Pure Oil Co.	38,000
Roxana Petroleum Corp.	19,000
Sinclair Oil & Gas Co.	266,000
Victor Gasoline Co.	34,500
Total	689,500

A Practical Suggestion

GASOLINE DISTILLATIONS

In the laboratory distillation of natural gasoline, the temperature of the condenser is required to be between 32 and 40 degrees Fahrenheit which is so maintained by cracked ice. When a large number of distillations are made considerable time and ice is used filling and draining the condenser, also the moisture that collects and drops from the sides of condenser is sometimes a nuisance.



To overcome this, the condenser may be insulated by cork boards, by insulation asbestos or some special cement made for the trade. The use of cork is the better and is fairly easily applied. A box of cork boards about 2 inches thick is made for the outside of the condenser with suitable holes made for the legs of condenser. The layers of cork are held to the sides of the condenser by asphalt, and melted asphalt poured around openings through which legs extend. The cork may be then coated with an appropriate paint, cement covering or even melted paraffin wax to make air tight.

To accomplish the same results, the condenser can be wrapped with wire, and asbestos cement applied and waterproofed. This does not work as satisfactorily as the cork, for even a small hole in the insulation will allow air to come in contact with condenser and the moisture which condenses will cause the cement to disintegrate. In either method a sheet of cork to snugly fit the top of condenser is used; it simply rests on the top of condenser and is lifted off when filling with cracked ice.

To lessen the handling of the thermometer, it may be held by a string which passes through two eye screws and is counterbalanced by small weight. A linen string should be used instead of ordinary cotton twine. The thermometer should be supported so that when it is not fitted in the distillation flask it will not hang directly over the shield. This is to permit the thermometer to cool more rapidly, also to protect the instrument in case someone should use the burner for soldering.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Apr. 17		Apr. 10		Apr. 3	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06¼	.06⅜	.06¼		.06	
56-58 450 endpoint	.06½		.06¼		.06	
58-60 450 endpoint	.06⅝		.06¼	.06⅝	.06	.06⅛
*58-60 437 endpoint (U. S. Motor)	.06838		.06633		.06570	
*60-62 437 endpoint	.06890		.0675		.06610	
*60-62 400 endpoint	.07125		.07172		.06880	
*64-66 375 endpoint	.07062		.07250		.07250	
68-70 360 endpoint	.07½		.07½		.07¼	.07½
64-66 437 endpoint (blend)	.06¾	.07⅛	.06⅝		.06¼	.06½

*Weighed average prices April 16 as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.06⅜	.06½	.06¼		.06	
58-60 450 endpoint	.06½		.06¼		.06	
58-60 437 endpoint (U. S. Motor)	.06⅝	.06¾	.06½	.06⅝	.06⅜	.06½
60-62 400 endpoint	.06⅞	.07	.06⅞	.07	.06¾	
64-66 390 endpoint	.07		.07		.06⅞	
64-66 375 endpoint	.07⅛	.07¼	.07⅛	.07¼	.07⅛	.07¼
68-70 360 endpoint	.07¼		.07¼	.07⅜	.07¼	.07⅜
64-66 437 endpoint (blend)	.06⅝	.06¾	.06⅜	.06½	.06⅛	.06¼
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07¼		.07	.07¼	.07	.07¼
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07	.07¼	.07		.06¾	.07
PENNSYLVANIA—						
52-64 Naphtha	.08¼	.08½	.07¾	.08	.07¾	.08
54-56 Naphtha	.08¼	.08½	.07¾	.08	.07¾	.08
58-60 Gasoline	.08¾	.09	.08¼	.08⅜	.08¼	.08⅜
60 Gasoline	.09	.09¼	.08½	.08¾	.08½	.08¾
62 Gasoline	.09¼	.09½	.08¾	.09	.08¾	.09
64 Gasoline	.09½	.09¾	.09¼	.09½	.09¼	.09½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09½	.10	.09	.10	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06¼		.06	.06¼	.05⅞	.06
56-58 450 endpoint	.06⅜	.06½	.06⅛	.06⅜	.06	
58-60 437 endpoint (U. S. Motor)	.06¾	.06⅞	.06¾	.06⅞	.06⅛	.06⅝
60-62 400 endpoint	.07	.07⅛	.06⅞	.07	.06¾	.07
64-66 375 endpoint	.07¼		.07⅛	.07¼	.07⅛	.07¼
68-70 360 endpoint	.07⅜	.07½	.07⅜	.07½	.07⅜	.07½
64-66 437 endpoint (blend)	.06⅝	.06¾	.06⅝	.06¾	.06¾	.06½

NATURAL GASOLINE

	Apr. 17		Apr. 10		Apr. 3	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¾		.04¾	.04⅞	.04⅛	.04¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾		.04⅝	.04¾	.04⅛	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½	.04⅝	.03¾	.04	.03⅝	.03¾
Grade BB, 84-92, 375 e.p., rec. 85%	.04½		.03¾	.04	.03½	
Grade C, 80-92, 375 e.p., rec., 78%	.04¼		.03¾	.03⅞	.03⅛	.03¼
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¾		.04¾	.05	.04¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05⅝	.05¾	.04⅝	.04¾	.04⅛	.04¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½		.03¾	.04	.03⅝	.03¾
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾	.04½	.03¾	.04	.03½	
Grade C, 80-92, 375 e.p., rec. 78%	.04⅛	.04¼	.03¾		.03¼	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06		.04⅞	.05	.04¾	.04½
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾		.04	.04⅛	.03⅞	.04
Grade C, 80-92, 375 e.p., rec. 78%	.04⅜	.04½	.04		.03⅜	
CALIFORNIA—						
75-85, 375-390 endpoint	.08½	.09	.08	.09	.07¾	.08¾
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¾		.04¾		.04⅛	.04¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾		.04⅝	.04¾	.04⅛	
Grade B, 76-83.9, 375 e.p., rec 85%	.04½		.03¾	.04	.03⅝	.03¾
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅜	.04½	.03¾	.03⅞	.03½	
Grade C, 80-90, 375 e.p., rec. 78%	.04¼		.03¾		.03⅛	

BURNING OIL

	Apr. 17		Apr. 10		Apr. 3	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05	.05⅛	.04¾	.04⅞	.04½	.04⅝
42-44 water white Kerosene	.05⅜	.05½	.05⅛	.05¼	.04⅞	.05⅛
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05½		.05		.04⅞	.05
NORTH TEXAS—						
41-43 water white Kerosene	.04¾	.04⅞	.04⅝		.04¾	.04⅝
40-42 water white Kerosene	.04½	.04⅝	.04⅜	.04½	.04¼	
ARKANSAS—						
41-43 water white Kerosene	.05¼		.05		.05	
PENNSYLVANIA—						
43 Kerosene Prime white	.06	.06¼	.05¾	.06	.05¾	.06
45 Kerosene water white	.06¼	.06½	.06	.06¼	.06	.06¼
46 Kerosene water white	.06¾	.07	.06¼	.06½	.06¼	.06½
47 Kerosene water white	.06¾	.07	.06⅝	.06¾	.06⅝	.06¾
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05½	.06	.05½	.06	.05½	.06
Engine distillate, 43-45 445 endpoint	.07½	.08	.07	.07½	.06½	.07
Engine distillate, 42-44 480 endpoint	.06½	.07	.06½	.07	.06¼	.06¾
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05	.05⅛	.05		.04½	.04¾
42-44 water white Kerosene	.05½		.05¼	.05½	.04⅞	.05

FUEL OILS

	Apr. 17		Apr. 10		Apr. 3	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.80		.80		.80	
18-22 Fuel Oil, per bbl.	.82½	.85	.82½	.85	.82½	.85
22-26 Fuel Oil, per bbl.	.85		.85		.85	
24-26 Fuel Oil, per bbl.	.85	.87½	.85	.87½	.85	.87½
26-30 Fuel Oil, per bbl.	.90		.90		.90	
28-30 Fuel Oil, per bbl.	.95		.95		.95	
32-36 Gas Oil (dark)	.02⅝		.02⅝		.02½	.02⅝
32-36 Gas Oil (straw distillate)	.02⅝		.02⅝		.02⅝	
36-38 Distillate	.03		.03		.03	
38-40 Straw Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars) per bbl.	.75	.80	.75	.80	.75	.80
32-36 Gas Oil (straw)	.02⅜		.02⅜		.02⅜	
38-40 Straw Distillate	.03		.03		.03	
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.85	.90	.85	.90	.85	.90
32-36 Gas Oil	.02⅞	.03	.02¾	.03	.02¾	.03
ARKANSAS—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
32-36 Gas Oil (straw)	.02¾	.03	.03		.03	
16-22 Refinery Fuel Oil, per bbl.	.80	.85	.85	.90	.85	.90
GULF COAST (South Texas)—						
Gas Oil	.04¼		.04¼		.04¼	
Fuel Oil, per bbl.	1.15		1.15		1.15	1.20
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.05	.04⅞	.05⅛	.04⅞	.05⅛
36-40 Fuel Oil	.05	.05¼	.05	.05¼	.05	.05¼
CALIFORNIA—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
27-32 Distillate	.02½	.03	.02½	.03	.02½	.03
*15-20 Fuel Oil, Bunker (at tide water)	.85	1.00	.85	1.00	.85	1.00
15-20 Fuel Oil (cargo lots), per. bbl.	.75	.85	.75	.85	.75	.85
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3, bbl.	.85	.90	.85	.90	.85	.90
22-26 Fuel Oil (sellers' cars) Group 3, bbl.	.82½	.87½	.85		.85	
18-22 (Group 3), per bbl.	.80	.85	.82½	.85	.82½	.85
16-20 Smackover, per bbl.	.85	.90	.90	.92½	.90	.92½
32-36 Gas Oil (zero)	.02¾	.03	.02¾	.03	.02¾	.03
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03		.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼

*Bunkers.

LUBRICATING OIL AND WAX

	Apr. 17		Apr. 10		Apr. 3	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09⅜	.10	.09⅜	.10	.09⅜	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 5 color, 23-28 cold test	.09⅛	.09½	.09¼	.09½	.09⅛	.09½
200 vis., 3 color, 23-28 cold test	.09½	.10½	.09½	.10½	.09½	.10½
200 vis., 4 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09⅝	.10¼
200 vis., 5 color, 23-28 cold test	.09¼	.10	.09¼	.10	.09¼	.10
240 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.08	.09	.08	.09	.08	.09
600, steam refined, dark green	.06	.06½	.06¼	.06¾	.06¼	.06¾
190-200 vis., @ 210 Bright Stock	.28	.29	.30	.32	.30	.32
150-160 vis. @ 210 Bright Stock	.22	.24	.22	.24	.22	.24
Waxes:						
124-126 White Crude Scale Wax	.03¼		.03¼		.03¼	
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.06½	.06¾	.06½	.06¾	.06½	.06¾
150, 3 color	.27	.27½	.27	.27½	.27	.27½
180, 3 color	.31	.31½	.31	.31½	.31	.31½
200, 3 color	.33½	.34	.33	.33½	.33	.33½
220, 3 color	.34½	.35	.34½	.35	.34½	.35
600, steam refined	.09¼	.09½	.09¼	.09½	.09¼	.09½
635, steam refined	.10¼	.10½	.10¼	.10½	.10¼	.10½
650, steam refined	.11	.11½	.11	.11½	.11	.11½
600, Pennsylvania flash	.14	.15	.14	.15	.14	.15
*550, E filtered	.14½	.15	.14½	.15	.14½	.15
*600, E filtered	.15½	.15¾	.15½	.15¾	.15½	.15¾
600, E filtered	.14¾	.15¼	.14¾	.15¼	.14¾	.15¼
600, D filtered	.22	.23	.22	.23	.22	.23
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.27	.27½	.26½	.27	.26½	.27
†122-124 White Crude Scale Wax	.03⅜	.03½	.03¼	.03⅜	.03¼	.03⅜
†124-126 White Crude Scale Wax	.03⅜	.03½	.03¼	.03⅜	.03¼	.03⅜

*At Warren, Pa. †At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.07½	.08	.07½	.08	.07½	.08
No. 2 color, 200 vis., pale oil	.09½	.10	.09½	.10	.07½	.08½
No. 3 color, 300 vis., pale oil	.11½	.12	.11½	.12	.10	.11
No. 3½ color, 500 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 4 color, 750 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.10	.10½	.10	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 2½ color, 200 vis., pale filtered	.11½	.12	.11½	.12	.11½	.12
No. 2½ color, 300 vis., pale filtered	.13	.13½	.13	.13½	.13	.13½
No. 2½ color, 500 vis., pale filtered	.15	.15½	.15	.15½	.14	.15
No. 2½-3 color, 750 vis., pale filtered	.17½	.19	.17½	.19	.17½	.19

Due to changes in freight rates which have become effective during the past month Kansas quotations as published in the past will be discontinued. These rate changes have divided the state in regard to interstate shipments to certain sections and have also changed the rate relationship with adjoining groups.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

CALIFORNIA—						
130 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
200 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
300 vis., 3-3½ color	.10½	.11	.10½	.11	.10½	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
400 vis., 3½--4 color	.13	.14	.13	.14	.13	.14
Red Neutral:						
200 vis., 4½-5 color	.08½	.09	.08½	.09	.08½	.09
300 vis., 5-6 color	.09	.10	.09	.10	.09	.10
400 vis., 5-6 color	.10½	.11	.10½	.11	.10½	.11
500 vis., 4½-5 color	.11½	.12	.11½	.12	.11½	.12
500 vis., 5-6½ color	.11	.11½	.11	.11½	.11	.11½
600 vis, 6 plus color	.12½	.13	.12½	.13	.12½	.13

Note: Bright Stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Apr. 17	Apr. 10	Apr. 3
Gasoline, U. S. Motor, 58-60 437	.09	.09¼	.09
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14-16, per bbl.	1.35	1.35	1.35
*Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 28 plus	.05½	.05¼	.05½
25 pale Paraffin Oil	.12	.10¾	.12
28 pale Paraffin Oil	.07	.07¼	.07
28 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.10½	.10½	.10½
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.04	.03¾	.04
125-127 a.m.p., per lb.	.04⅛	.04	.04⅛
130-132 a.m.p., per lb.	.04½	.04⅜	.04½
135-137 a.m.p., per lb.	.06⅛	.06	.06
Petrolatum, in bbls., carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03⅜	.03¾	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily White	.08¼	.08¼	.08¼
Snow White	.09¼	.09¼	.09¼

*Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Apr. 17	Apr. 10	Apr. 3
Gasoline, U. S. Motor, 58-60 437, in cases	.2515	.2515	.2490
Keosene, standard white, in cases	.1715	.1715	.1690
Kerosene, water white, in cases	.1815	.1815	.1790
600, steam refined cylinder stock, in bbls.	.16¾	.16½	.17
635, steam refined	.18	.18	.19
650, steam refined	.18½	.18½	.20
600, Pennsylvania flash	.22	.22	.23
630, Pennsylvania flash	.34	.34	.35
600, Warren E	.24	.24	.25
600, Oil City E	.23	.23	.24
Light 135 Bright Stock	.37	.36	.40
Dark 135 Bright Stock	.35	.34	.38

LOS ANGELES EXPORT PRICES

	Apr. 17	Apr. 10	Apr. 3
Kerosene, water white	.05 .05¼	.05 .05¼	.05 .05¼
U. S. Motor Gasoline, 53-55 437 e.p.	.06½ .07½	.06¼ .06½	.06¼ .06½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927).....$1.00
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Carson and Hutchinson

Below 31 gravity .....$ .60
31-31.9 65
32-32.9 70
33-33.9 73
34-34.9 76
35-35.9 79
36-36.9 82
37-37.9 85
38-38.9 88
39-39.9 91
40-40.9 94
41-41.9 97
42-42.9 .....1.00
43-43.9 .....1.03
44 and above 1.06

Wheeler County

Below 29 gravity .....$ .60
29-29.9 65
30-30.9 70
31-31.9 75
32-32.9 80
33-33.9 83
34-34.9 86
35-35.9 89
36-36.9 92
37-37.9 95
38-38.9 98
39-39.9 .....1.01
40-40.9 .....1.04
41-41.9 .....1.07
42-42.9 .....1.10
43-43.9 .....1.13
44 and above 1.16
Gray County.....See gravity table

Humble Oil & Refining Co. Magnolia Petroleum Co. February 21.

*Iatan.....Same as North Texas
Crane-Upton-Crockett.....See gravity table
†Glasscock .....$ .60
†Chalk 80

*Includes Howard County and Westbrook Fields. Marland Refining Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., Jan. 14, 1928.

ARKANSAS-NORTH LOUISIANA

*Cotton Valley (Below 36 gravity April 11) .....$ .75
Bellevue (Feb. 24, 1927) 1.20
Urania (Nov. 18, 1927) 75
East El Dorado (March 16, 1927) 1.00
Other fields.....See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co. and Magnolia Petroleum Co.; (Magnolia Petroleum Co. posted Cotton Valley February 8); Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14) $1.20
Grade B.....See gravity table
*Jennings, La. (March 14).....$1.05
†Saratoga, Batson, Daytona (March 14, 1927) $1.20
§Markham (March 14) 1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. §The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5) $1.00
†Mirando (March 14) 1.00
Rockdale-Minerva (April 15):
Below 38 gravity.....1.25
38-38.9 gravity 1.27
39-39.9 gravity 1.29
40 and above.....1.31

(Continued on Page 148)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans., N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Gray County (Texas Panhandle) 5	Crane, Upton, Pecos, Crockett, Winkler Counties (Wes. Texas) 6	Salt Creek, Wyo. 7	Grade B & Light (G. Coast) 8	Somerset (South Central Texas) 9
24 and above	....	....	.90	....	....	....	....	....	....
Below 24	.76	....	.75	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	....	1.15	....
24 to 24.9	.76	....	....	....	....	....	....	....	....
25 to 25.9	.81	....	....	....	....	....	....	....	....
Below 26	....	....	....	....	.60	.60	....	....	....
26 to 26.9	.86	....	....	....	.60	.60	....	1.19	....
27 to 27.9	.91	....	....	....	.65	.60	....	1.21	....
Below 28	....	.91	....	.85	....	....	....	....	....
28 to 28.9	.96	.96	....	.87	.70	.60	....	1.23	....
29 to 29.9	1.01	1.01	....	.89	.75	.60	1.01	1.25	....
30 to 30.9	1.06	1.06	....	.91	.80	.60	1.06	1.27	....
31 to 31.9	1.11	1.11	....	.93	.85	.60	1.11	1.29	....
32 to 32.9	1.16	1.16	....	.95	.90	.60	1.16	1.31	1.05
33 to 33.9	1.19	1.19	....	....	.93	.60	1.19	1.33	1.07
34 to 34.9	1.22	1.22	....	....	.96	.60	1.22	1.35	1.09
35 to 35.9	1.25	1.25	....	....	.99	.60	1.25	1.37	1.11
36 to 36.9	1.28	1.28	....	....	1.02	.60	1.28	....	1.13
37 to 37.9	1.31	1.31	....	....	1.05	....	1.31	....	1.15
38 to 38.9	1.34	1.34	....	....	1.08	....	....	....	1.17
39 to 39.9	1.37	1.37	....	....	1.11	....	....	....	....
40 to 40.9	1.40	1.40	....	....	1.14	....	....	....	....
41 to 41.9	1.43	1.43	....	....	1.17	....	....	....	....
42 to 42.9	1.46	1.46	....	....	1.20	....	....	....	....
43 to 43.9	1.49	1.49	....	....	1.23	....	....	....	....
44 to 44.9	1.52	1.52	....	....	1.26	....	....	....	....
45 to 45.9	1.55	1.55	....	....	....	....	....	....	....
46 to 46.9	1.58	1.58	....	....	....	....	....	....	....
47 to 47.9	1.61	1.61	....	....	....	....	....	....	....
48 to 48.9	1.64	1.64	....	....	....	....	....	....	....
49 to 49.9	1.67	1.67	....	....	....	....	....	....	....
50 to 50.9	1.70	1.70	....	....	....	....	....	....	....
51 to 51.9	1.73	1.73	....	....	....	....	....	....	....
52 and above	1.76	1.76	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted schedule February 21, 1928, making price below 30 gravity $.75 per barrel, 30-30.9 gravity $.90 and 31-31.9 gravity $1.05, with 3 cents increase per degree higher in gravity, taking 32-32.9 gravity at $1.16 as basis, with a top price of $1.76 for 52 and above.

Humble Oil Refining Co. posted $1.52 on all oil 44 gravity and above.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Carter Oil Co., The Texas Company, February 21.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia) only. Iatan posted a flat price of $.93 by Magnolia on January 14, 1928). Currie, Nocona, Moran and Corsicana light]; Texas, Prairie, Sinclair and Gulf; The Texas Company, Humble Oil & Refining Co., February 21.

Kansas—Prairie, Sinclair; Carter, The Texas Company, February 21.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only]; Standard Oil Co. of Louisiana, Texas Pipe Line Co., Louisiana Oil Refining Co., February 21 and Magnolia Petroleum Co., February 23.

Column 3—February 6, Louisiana Oil Refining Co. February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co. February 8, and Atlantic Production Co. February 10.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., The Texas Company, February 22.

Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., February 21.

Column 6—Humble Oil & Refining Co., August 23; Marland Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 7—Midwest Refining Co., February 21. All crude over 37 gravity, $1.31 per barrel.

Column 8—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. posted 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 9—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)*

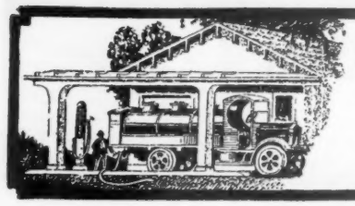
Gravity—	Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans, Dom'gues, Torrance-Inglewood 1	Whittier, La Habra, Montebello 2	Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills, Coyote 3	Santa Fe Springs 4	*Coalinga 5	*Wheeler Ridge 6	Santa Maria, Ventura, Orcutt, Salt Lake 7
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	.93
31°	1.03	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.05	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richland and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Domingues, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted by Union Oil Co.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns April 17.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.	14.0	16.0	...	12.0
Decatur, Ill.	14.2	16.2	...	12.1
E. St. Louis	13.1	15.35	...	11.2
Joliet	14.4	16.4	...	12.3
Peoria	14.2	16.2	...	12.1
Quincy	14.2	16.2	...	11.9
Davenport, Ia.	17.5	19.5	3.0	12.3
Des Moines	15.9	17.9	3.0	12.3
Keokuk	17.5	19.5	3.0	12.3
Sioux City	17.1	19.1	3.0	11.9
Duluth, Minn.	15.5	17.5	2.0	12.9
Minneapolis	16.0	18.0	2.0	12.9
Mankato	14.1	16.1	2.0	12.7
La Crosse, Wis.	17.2	19.2	2.0	13.0
Milwaukee	16.1	18.1	2.0	11.9
Madison	16.3	18.3	2.0	12.1
Detroit, Mich.	17.8	19.8	3.0	13.7
Grand Rapids	17.7	19.7	3.0	13.6
Saginaw	17.9	19.9	3.0	13.8
Evansville, Ind.	17.0	19.0	3.0	13.0
Ft. Wayne	16.4	17.4	3.0	13.4
Indianapolis	17.2	19.2	3.0	12.2
South Bend	17.4	19.4	3.0	13.4
Fargo, N. D.	18.9	20.9	2.0	14.9
Huron, S. D.	19.5	21.5	4.0	13.9
Sioux Falls	18.0	20.0	4.0	13.4
*K. C., Mo.	16.9	18.9	3.0	10.6
*Springfield	16.8	18.8	3.0	11.5
*St. Louis	15.6	17.9	2.5	11.3
*St. Joseph	14.5	16.5	3.0	11.2
Wichita, Kans.	14.8	16.8	2.0	10.8
Bartlesville, Okla.	15.5	17.5	3.0	10.5

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	14.7	9.5
V. M. & P. naphtha	16 2	11.0
Cleaner's naphtha	18 0	12.0
Stanisol	19 0	12 5

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline: 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1¼ cents, 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
All Ohio points	17 0	19 0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	14 0	18 0	3 0	11 0
Ft. Worth	15 0	18 0	3 0	11 0
Houston	14 0	18 0	3.0	15 0
San Antonio	15.0	18 0	3.0	10 0
El Paso	17 0	20.0	3.0	16 0
Texarkana	14 0	20 0	3 0	12 0
Muskogee, Okla.	17 0	18 0	3 0	11.0
Okla. City	16 0	17.0	3 0	11 0
Tulsa	16 0	17.0	3 0	11.0
Ft. Smith, Ark.	18.0	20.0	5 0	13 0
Little Rock	20 0	21.0	5.0	12 0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quarters cent; over 3,000 gallons, 1 cent; over 4,000 gallons, 1¼ cent; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1½ cents; over 400 gallons, 1⅞ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
*N.Orleans, La.	16.5	18.5	2.0	14.0
Baton Rouge	15.0	17.0	2.0	12.5
Alexandria	16 0	18.0	2.0	14.0
LaFayette	16.0	18.0	2.0	12.5
Lake Charles	16.5	18.5	2.0	14.0
Shreveport	16 5	18.5	2.0	13.0
Kn'xville, Tenn.	18 0	20.0	3.0	15.0
Memphis	17 0	19.0	3.0	14.0
Chattanooga	18.0	20 0	3.0	15.0
Nashville	18 0	20.0	3.0	15.0
Bristol	19.0	21.0	3.0	14.0
Lt. Rock, Ark.	20.0	22.0	5.0	13.0

*Tax of 3 cents includes city tax of 1 cent.
*Louisiana kerosene prices include 1-cent State tax and 1 cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	17 0	19.0	4 0	14 0
Augusta	19.0	22.0	4.0	16 5
Macon	16 0	19 0	4.0	13.5
Savannah	17 0	19 0	4.0	14.5
Birm'h'm, Ala.	18.0	21 0	4.0	14 5
Mobile	17 0	20 0	4.0	14 0
Montgomery	16.0	19.0	5.0	15.5
Clarks'le, Miss.	17 0	20 0	4.0	11.5
Jackson	17 0	20 0	4.0	11 5
Natchez	16 5	19 5	4.0	14.0
Gulfport	18 5	21 5	6.0	14 0
Vicksburg	16.5	19.5	4.0	14.0
Jack'ville, Fla.	18 0	21 0	5.0	11.5
Miami	20 0	23 0	5.0	14.5
Pensacola	19 0	22 0	5 0	13.0
Tampa	18 0	21 0	5.0	13.0
Lexington, Ky.	18.0	21 0	5.0	16 5
Covington	19 0	22.0	5 0	15 5
Louisville	18.0	21.0	5.0	15.0

In addition to the State tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia include 1 cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to State tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	16 0	*22.0	...	13 0
Philadelphia	16 0	*22 0	...	13.0
Scranton	16 0	*22 0	...	13.0
Allentown	16 0	*22 0	...	13 0
Altoona	16.0	*22.0	...	13.0
Erie	13 0	*18 0	...	13 0
Dover, Del.	19 0	22 0	3.0	13.0
Wilmington	19 0	22 0	3.0	12 0
Spring'd, Mass.	18 0	18.0	...	15 0
Worcester	18 0	18 0	...	15 0
Boston	18 0	18 0	...	15 0
Providence, R.I.	20 0	20 0	3.0	15.0
Hartford, Conn.	20.0	20.0	3.0	14 0
New Haven	20.0	20.0	3.0	15.0

*Includes tax of 2.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	17 0	19 0	...	15 0
*New York	17 0	19.0	...	15 0
Buffalo	15.0	18 0	...	14.0
Rochester	15 0	18 0	...	14 0
Syracuse	17 0	19.0	...	15 0
Boston, Mass.	18.0	19 0	...	15.0
Augusta, Me.	21 0	22 0	4.0	15 0
M'nch't'r, N. H.	21 0	22 0	4.0	15.0
Burlington, Vt.	20 0	22.0	3.0	15.0

*Price in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	15 25	17.25	2 0	12 25
McCook	14 75	14.75	2 0	11 50
Norfolk	16.75	18 75	2 0	12 75
N. Platte	17 75	19 75	2.0	13.50
Scottsbluff	17 25	19 25	2.0	13.00

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	17.0	21 0	3 0	15 5
Pueblo	18 0	18.0	3 0	15 5
Los Angeles	16 5	20 5	3.0	15.5
Reno, Nev.	22 0	26 0	4.0	19 0
Portland, Ore.	17 5	21 5	3 0	16 5
Seattle, Wash.	16.5	20.5	3.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	3.0	20.5
Phoenix, Ariz.	23.0	27.0	4.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	18.0	20.0	2.0	14.0
Newark, N. J.	18.0	20.0	2.0	14.0
Annapolis, Md.	20.0	23 0	4.0	14.0
Baltimore	20.0	23 0	4.0	12 0
Cumberland	20 0	23 0	4.0	14.0
Washington	18 0	21.0	2.0	14.0
Danville, Va.	21.0	....	5.0	14.0
Norfolk	21 0	24.0	5.0	14.0
Petersburg	21.0	24 0	5.0	14.0
Roanoke	21 0	24.0	5.0	14.0
Richmond	19.0	22.0	5.0	14.0
Ch'rlst'n, W.Va.	20.0	23 0	4 0	14.0
Keyser	20.0	23.0	4.0	14.0
Parkersburg	18 0	21 0	4.0	14 0
Wheeling	20 0	23.0	4.0	14.0
Charlotte, N. C.	20.0	23 0	4.0	14.0
Hickory	20 0	20.0	4.0	14.0
Mt. Airy	20 0	20 0	4.0	14.0
Salisbury	20 0	20 0	4 0	14.0
Charlst'n S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	23 0	5.0	14.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	17 0	19 0	3.0	14.5
Pueblo	17 0	19 0	3.0	14.5
Grand Jct.	20 5	22.5	3.0	18.0
Casper, Wyo.	17 0	19 0	3.0	13.0
Cheyenne	18 0	20 0	3.0	14.5
Butte, Mont.	22 5	22 5	3.0	19.0
Helena	22 5	24.5	3.0	19.0
Salt L'ke, Utah	20 0	22 0	3 5	17.0
Albu'que, N. M.	22.0	25 0	5.0	17.0
Boise, Idaho	23 5	25 5	4.0	19.0
Twin Falls	23 5	25 5	4.0	19.0

TANK WAGON CHANGES

April 6—Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices to 14 cents and 16 cents at Muskogee, Okla.

April 7—Magnolia Petroleum Co. increased the gasoline station price in Fort Smith, Ark., to 20 cents.

April 10—Magnolia Petroleum Co. increased the gasoline tank wagon and station prices in Muskogee, Okla., to 17 cents and 18 cents.

April 11—Standard Oil Co. of New Jersey increased kerosene to 14 cents in Annapolis, Md., Washington, D. C., and Norfolk, Va., and 12 cents in Baltimore, Md.

April 12—Standard Oil Co. of Indiana increased the gasoline tank wagon and station prices 2 cents in Kansas City, Mo., to 16.9 and 18.9 cents.

CRUDE PRICE CHANGES

April 11—Standard Oil Co. of Louisiana posted all Cotton Valley, Louisiana, crude below 36 gravity at 75 cents and adopted the Mid-Continent gravity-price schedule for the grades 36 gravity and above.

GERMAN PRODUCTION OF OIL IS INCREASING

In addition to the development of the process of coal hydrogenation, Germany has been increasing its petroleum production, almost half of which before the war came from Alsace. In 1913 German production came to 120,983 metric tons, of which 71,399 tons were produced in Hanover and 49,584 in Alsace. Production declined to 37,444 tons in 1919 and has since increased slowly from year to year, reaching a total of 95,392 tons in 1926, all from Hanover.

During 1927 extensive drilling was conducted in the North German oil district, and some of the wells have reported considerable success recently. In January, 1928, a well was struck near Peine with a daily production of 6,000 kilos of high quality light oil containing a high percentage of benzine and other high volatile oils. Another well in the same vicinity also reports a flow of petroleum with a high benzine percentage. Hitherto, the greater part of the oil produced in Hanover has been heavy, with a low benzine content. The present production of petroleum in Germany amounts to about one-twentieth of the country's requirements in 1927.

The coal hydrogenation plant of the I. G. Farbenindustries reports a present production of 2,000 tons of synthetic benzine per month, to be increased to 10,000 or 12,000 at the end of the year. The exact qualities of this benzine are not yet known, as it has been sold with benzine of American or other origin. A recently published analysis gives it a density of 741, distillation figure 112, sulphuric acid test below 2 and about 17 per cent of aromatic hydrocarbons, making it almost identical with an average heavy American benzine.

DEATH OF A. L. BROOMALL

A. L. Broomall, aged 44 years, manager of the renewal parts engineering department of the Westinghouse Electric & Manufacturing Co., died April 10, in his home at Wilkinsburg, Pa., from pneumonia.

CRUDE OIL PRICES

(Continued from Page 147)

*Thrall	
Callihan (May 15)	1.75
Lytton Springs (Lockhart).	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12)	$1.35
Salt Creek	See gravity table
Big Muddy (March 13)	$1.35
Mule Creek (May 1)	1.10
Grass Creek, heavy	.90
Grass Creek, light	1.33
Elk Basin (March 12)	1.33
Lance Creek (March 12)	1.33
Poison Spider	1.00
Notches	.85
Rex Lake (February 22)	1.10
Osage	1.33
Lost Soldier (contract)	.95
Greybull-Torchlight	1.33
Hamilton Dome	.85
Cat Creek (Mont.)	1.33
Sunburst (Mont.) (Jan. 25, 1928)	1.50
Artesia (March 12)	1.00
Hogback (N. Mex.) (March 14)	1.33

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective December 17)

Penna Grade Oil in New York Transit Line (New York)	$2.30
Bradford District Oil in National Transit Lines (Pennsylvania)	2.30
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.05
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.05
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.00
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.35
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (February 9, 1928)	1.30
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (December 19)	1.45
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (December 19)	1.45
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (February 9, 1928)	1.45
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (August 1)	.95
Keister (Pennsylvania) (August 1)	1.10

MIDDLE WESTERN STATES
Ohio Oil Co.
(Effective March 14, 1927)

Lima (February 10)	$1.55
Wooster	1.57
Illinois (February 23, 1928)	1.60
Indiana (February 10, 1928)	1.32
Princeton (February 23, 1928)	1.50
Plymouth (February 23, 1928)	1.32
Waterloo (November 17, 1926)	1.35
*Western Kentucky	1.33
**Saginaw, Mich., Saginaw Sand (February 10)	1.89
**Saginaw, Mich., Berea Sand (February 10)	1.79
†Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
§Oil Springs (Canada) (February 10, 1928)	2.03
‖Petrolia (Canada) (February 10, 1928)	1.95

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mexican ports)	$1.35

*$1.15.

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Oil Securities in Upward Movement

Twenty at New Highs. Not a Single Issue Lost Ground in Monday's Trading. Effect of Curtailment by Industry

Oil securities came into their own on Monday of this week, when a concentrated wave of buying power forced them all into new high ground for 1928. The accompanying table shows that 20 issues on the New York Exchange and Curb attained new highs following. According to advices from Wall Street, the public wanted to buy the oils, and operators with other sections of the board going stale, have started operations on the oils.

It is over seven years since the oils have experienced a healthy bull market, and Monday their prominence caused considerable excitement.

Standard of New Jersey, after stopping several times at 41 on the way up, sold at 44¾, while Marland, Independent, California Petroleum, Amerada, Humble, and Prairie Oil & Gas touched new levels.

The series of curtailment meetings and their successful plans for eliminating any further expansion of the nation's daily oil output have to a large extent tended to renew the confidence of the investing public in oil securities. The trading Monday can possibly be illustrated by the fact that not a single oil issue lost ground, and the majority closed near their tops.

Southern Pipe Line

Southern Pipe Line Co. directors have authorized a payment of $15 a share from capital stock reduction account, following approval by stockholders of reduction of company's capital stock to $1-,000,000 of $10 par value from $5,000,000 of $50 par. Transfer books will be closed May 15 and no transfer of $50 par stock will be made after that date. No further dividends will be paid on the $50 par stock, announcement states. Checks for the $15 a share distribution will be mailed with the new certificates ($10 par) on or about June 15.

Tide Water Associated

Consolidated statement of income, profit and loss and surplus accounts for the year ended December 31, 1927, of the Tide Water Associated Oil Co. and subsidiaries follows:

Total volume of business done by Tide Water Asociated Oil Co. and its subsidiaries as represented by their combined gross sales and earnings exclusive of intercompany sales and transactions	$153,098,374.49
Total expenses incident to operations including repairs, maintenance, pensions, administrative, insurance, retirement of physical property, cancellation of leases, development expense on both productive and unproductive acreage, abandoned wells and all other charges, except depreciation and depletion and Federal income taxes	132,379,627.22
Operating income	$ 20,718,747.27
Other income	1,666,000.77
Total income	$ 22,384,748.04
Interest, disc. and premium on funded debt	1,468,281.87
	$ 20,916,466.17
Depreciation and depletion charged off	12,423,612.60
	$ 8,492,853.57
Estimated Federal income tax	204,841.60
Net income	$ 8,288,011.97
Minority interests' proportion of current earnings (includes dividend on subsidiary company's preferred stock)	2,942,139.88
Tide Water Asociated Oil Co. stockholders' proportion of profits	$ 5,345,872.09
Earned surplus as at January 1, 1927	3,595,027.61
Surplus adjustments	2,181,202.48
	$ 11,122,102.18
Dividends paid in cash: Preferred ... $4,364,935.50 Common 3,592,856.25	7,957,791.75
Earned surplus as at December 31, 1927	$ 3,164,310.43

Northern Pipe Line

Special stockholders meeting of Northern Pipe Line Co. will be held at Oil City, Pa., June 12 to vote on reduction of company's capital to $2,000,000 from $4,000,000 and reduction of par value of stock to $50 a share from $100. It is explained that if such actions are taken, directors will be in a position to make a distribution of assets, which would probably be $50 a share in cash. Those who have been stockholders for 60 days preceding the meeting will be entitled to vote on the proposition.

Philadelphia Co.

Annual meeting of stockholders of Philadelphia Co. will be held on April 24 for the purposes of electing directors and approving terms of purchase by Philadelphia Co. from H. M. Byllesby & Co. of stock of Kentucky, West Virginia Gas Co.

Vacuum Expansion

Increase in Vacuum Oil authorized capital stock, recently approved by stockholders, places the company in a position to follow through a program of expansion. Plans call for the acquisition, as occasion may require, of property or interests in other companies. In this connection, oil circles hear that Vacuum already has under consideration the taking over of one of the domestic oil producing units.

Another proposition that Vacuum has had under contemplation is expansion in the British market, looking toward a distribution of kerosene in that territory. At the annual meeting, stockholders approved a proposal regarding capital to be used in company's activities in Portugal and adjacent areas. Expansion in the Australian market is another move that may be given consideration.

Vacuum recently declared a 100 per cent stock dividend, to be paid April 28. Stockholders have approved increase in authorized capital stock from 2,800,000 shares to 7,000,000 shares, of $25 par value. Balance of additional shares, after distribution of the stock dividend, will be used for acquisition of properties and shares in other companies, as may be necessary in the expansion of Vacuum's activities. The company has no funded debt. The present stock has received $5 a share in dividends for the past three years, comprising $2 regular and $3 in extras.

Sinclair Consolidated

Report of Sinclair Consolidated Oil Corp. for the year ended December 31, 1927, shows balance of $24,145,937 before depreciation and depletion, but after interest, taxes, etc., comparing with $35,216,887 in 1926. After deducting reserve for depreciation, depletion, amortization, etc., net income was $5,391,081 equivalent after 8 per cent preferred dividends to 89 cents a share earned on 4,509,480 shares of no par common stock. This compares with net income of $17,648,032 or $3.60 a share in preceding year.

Consolidated income account for 1927 compares as follows:

	1927	1926
Gross earn.	$168,814,456	$191,737,701
Exp., maint., taxes etc.	137,079,631	148,798,193
Net earn.	$ 31,734,825	$ 42,939,508
Int. & disc.	7,588,888	7,722,622
Balance	$ 24,145,937	$ 35,216,887
Depr., depl., etc.	18,754,856	17,568,855
Net income	$ 5,391,081	$ 17,648,032
Pfd. divs.	1,358,632	1,408,742
Com. divs.		
Surplus	$ 4,032,449	$ 16,239,290

Demoralized condition of oil industry, due to overproduction, caused unsatisfactory earnings of Sinclair Consolidated Oil Corp., says H. F. Sinclair, chairman, in annual report. Crude oil price declined 96 cents a barrel on the average and margin of profit on gasoline was reduced by competition. Thus, though company handled bigger volume and reduced costs, profits were much lower.

Sales of gasoline and other products through company's own stations increased 17 per cent.

Statistics bearing upon company's operations follows:

	1927	1926
Net crude oil production in U. S. (bbls.)	14,704,201	11,240,799
Net crude oil production in Mexico (bbls.)	2,765,416	2,685,890
Net casinghead gasoline prod. (gals.)	79,566,923	43,974,677
Crude run through gasoline and lubricating oil refineries (bbls.)	28,361,483	24,766,326
Crude run through asphalt refinery (bbls.)	1,948,238	3,284,729
Gasoline sold (gals.)	791,392,154	683,048,593
Oil cargoes transported by tank steamships, exclusive of Cuban intercoastal shipments and barge deliveries (bbls.)	17,920,810	17,605,032
Sinclair Pipe Line Co. (50 per cent owned) crude oil deliveries (bbls.)	32,253,191	29,621,997
Sinclair Crude Oil Pur. Co. (50 per cent owned)—Net amount of crude oil on hand, Dec. 31 (bbls.)	36,036,053	34,230,757

"Moderate improvement in the underlying conditions of the industry is indicated by the steady increase in consumption of crude oil and refined products and some progress towards the stabilization of crude oil production in the United States," Mr. Sinclair said. "Heavy draughts on gasoline storage during 1927, relatively small accumulation during the winter months and continuing increase in consumption indicate a more favorable outlook for profitable operations in gasoline during the current year."

Humble Oil

New York and Texas interests, says the Wall Street Journal, have been principal buyers of Humble Oil & Refining Co. whose stock is 65 per cent owned by Standard Oil of New Jersey. "Humble is one of the few oil companies which did not store oil last year and is not doing it this year as a matter of deliberate policy. But it has spent more than $30,000,000 in a year expanding its pipe line facilities until now it is the biggest pipe line company in the world. All lines are in Texas, and Humble is moving up-

(Continued on Page 153)

LIST OF ACTIVE PETROLEUM STOCKS

Stocks—	Par	Clos. Quot.—Apr.16	Apr.9	1928—High	Low	1927—High	Low	1926—High	Low
Amerada Corp.	..	36	34⅝	36	27½	37½	27⅝	32⅝	24¾
Atlantic Refining, com.	100	125½	124	121¾	95¾	131¾	107	128⅜	97
Barnsdall "A"	25	25½	23½	26½	22½	35½	20¾	32½	23½
California Petroleum, com.	25	29	27¾	31	24	32⅞	20	38½	30⅞
Houston Oil	100	158⅝	158⅝	166⅜	127	175⅝	60¼	75	50½
Independent Oil & Gas	..	29⅜	26⅜	29¾	21⅜	32¾	17⅝	34	20¼
Louisiana Oil	10	14½	11¼	14¼	9⅜	18⅛	10½	19⅝	12
Maracaibo	..	17½	15⅝	18⅛	12½	22⅜	12	27¾	18⅜
Marland	..	44	40⅞	44	33	58⅛	31	63⅜	41¼
Mid-Continent Petroleum	..	31	28⅝	31	25¼	39⅜	25½	41	25⅜
National Supply	50	95½	93¼	97⅞	90	95⅜	76	84¾	65½
Oil Well Supply	25	31	32½	41	33	44⅜	31½	36	30
Pan American, B	50	49⅝	46¼	49¾	37¾	66⅜	45⅛	72¾	56⅛
Pan American, Western B	..	25	24⅝	25	18¼	37⅞	16⅜	46	34
Phillips Petroleum	..	42⅞	40⅞	43½	35½	60¼	36½	54⅞	42⅛
Producers & Refiners	50	23⅞	22⅜	26	16	33⅞	16⅜	26	11
Pure Oil, com.	..	25⅜	23⅞	27½	19	33½	25	31	25⅜
Royal Dutch, N. Y., sh.	13.40	46⅜	47	48⅜	44⅜	54½	44¼	57⅜	49⅜
Shell Transport	10	42⅜	44	42⅞	39⅜	49	41⅞	48⅞	42
Shell Union, com.	..	28⅜	27⅛	28½	23¼	31⅜	24⅝	30⅞	24
Simms Petroleum	10	24½	22⅞	25½	18	23⅞	14¼	25⅝	16½
Sinclair Consolidated	..	28⅞	28	28⅞	17½	32⅜	15¼	24⅞	16⅜
Skelly Oil	25	32½	31⅜	32⅞	25	37⅜	24⅛	37½	27
Standard of California	25	61¼	59	61⅜	53	60⅜	50⅜	63½	54
Standard of New Jersey, com.	25	44⅜	40⅞	44⅝	37⅜	41⅜	35⅛	46⅝	37½
Standard of New York	25	32½	30⅝	32⅝	28⅜	34½	29⅜	47¼	30⅝
Sun Oil Co.	..	44⅝	42	44⅜	31½	34⅞	30	41¼	30⅛
The Texas Company	25	59⅜	54⅞	60	50	58	45	58	48
Texas Pacific Coal & Oil	10	15½	13½	17	12⅛	18⅞	12	19½	12⅛
Tide Water Associated	..	20⅜	15½	20⅜	14⅜	19⅛	15⅜	21	17
Transcontinental	..	9⅛	8⅜	10⅛	7⅛	10⅜	3⅜	5½	3
Union Oil of California	25	55⅜	50⅞	57	42⅜	56½	39⅜	53⅜	37¼
Union Tank, com.	100	120	120	125	119¼	126	94	120⅝	84¼
White Eagle Oil & Refining	..	22⅜	21⅛	21¼	20¼	27½	21⅜	29¾	25⅛
Standard Oils									
Anglo-American	£1	19⅞	20½	22⅜	18½	21⅝	17⅛	19¾	16½
Borne Scrymser	25	52	50	56	50	69	49½	75	65
Buckeye Pipe Line	50	73½	73½	70	58	59	45	69½	42
Chesebrough Manufacturing Co.	25	170	134	149¾	117¼	126	76½	81⅛	63
Continental	10	19⅜	17⅜	23	16	22⅝	16⅛	25⅞	10¼
Cumberland Pipe Line	100	97	97	105	89	‡137	90	137	102
Eureka Pipe Line	100	101	70½	72¾	64⅜	66	47	43⅜	43
Galena Signal, com.	100	8⅝	7	7⅝	4	13½	4½	32¼	9⅞
Humble Oil & Refining Co.	25	68⅝	65¼	68⅝	58½	67⅜	54	99⅝	52
Illinois Pipe Line	100	192½	199	206	176½	181½	123⅜	144	131
Imperial Oil	..	64	60⅞	65¼	56⅞	64⅜	37⅜	39⅜	32¼
Indiana Pipe Line	50	82½	81	84⅝	75	93	61	68	52¼
International Petroleum Co.	10	41⅛	39	43	35	36⅜	28¼	35¼	28¾
National Transit Co.	12.50	30	30¼	28¼	20½	23¼	13¼	30⅜	27¼
New York Transit	100	54	54	54	38½	42	31¼	61½	27¼
Northern Pipe Line	100	..	116	117⅜	94	96	70	80½	64
Ohio Oil Co.	25	62⅛	60¾	66⅛	58½	66	52	67⅝	55¾
Penn-Mex Fuel	25	75	41	44¾	33	36½	12	24½	15
Prairie Oil & Gas	25	51⅝	49⅞	51½	47⅝	55½	45⅝	60¼	49
Prairie Pipe Line	100	217½	217	224	184	189¼	132	137½	122½
Solar Refining Co.	100	172	175	178	175	‡201½	178	212	184½
South Penn Oil	25	52	41½	42	36¾	41½	34½	50	30
Southwest Pa. Line	100	86	88	88¾	70	78	55½	56	47½
Southern Pipe Line	50	32½	30½	33½	21	39	18½	27	34
Standard of Indiana	25	79⅞	77⅛	80¼	71⅛	80¼	64⅝	70½	60½
Standard of Kansas	25	25½	21½	21⅝	15	20⅞	15⅝	36⅛	26½
Standard of Kentucky	25	132	128	133	124	125½	111½	134⅝	107
Standard of Nebraska	25	44	44⅜	43	40½	49½	43	51⅛	42
Standard of Ohio, com.	100	76	74⅜	79⅜	72	81½	72	362	192½
Swan & Finch, com.	25	18	16	17⅜	16½	21	11⅛	21	18
Vacuum Oil	25	152½	151½	149	136⅝	147	95⅛	109¾	94⅛
Miscellaneous									
Gulf Oil Corp. of La.	25	116⅝	114	117¼	101⅛	116	86¼	95	82½

*Bid, no sales. ‡Old stock. †New stock. §Ex-dividend.
Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was as follows:

Apr. 16	69.43	Mar. 12	62.07	Feb. 6	62.03
Apr. 9	67.21	Mar. 5	62.56	Jan. 30	62.75
Apr. 2	65.28	Feb. 27	62.54	Jan. 23	63.49
Mar. 26	64.48	Feb. 20	60.77	Jan. 16	63.87
Mar. 19	63.79	Feb. 13	61.02	Jan. 9	63.55

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GASOLINE FOR MAKING PERFUME

Is gasoline suitable for extracting perfume from flowers? Has it been used anywhere for this purpose?—A. A. D.

Considerable quantities of gasoline are used in the perfume industry. The village of Grasse, France, is the center of the extracting or distilling step in the manufacture of perfumes and special grades of gasoline are utilized.

Most of the expensive perfume sold in Paris is blened in Paris though the original extract is distilled at Grasse from flowers grown in the surrounding country. Gasoline has reduced the difficulties formerly experienced as well as the costs of the distillation. The petals were formerly spread on a screen covered with pomade or fats which absorbed the oils containing the sweet odors. The pomade was then washed in alcohol, the oil rising to the surface and the fats settling. Under the new method the flowers are placed in extractors, or retors, in which the concentration takes place. About 1,000 pounds of flowers are required to make one quart of the perfume extract.

RACHIG RINGS

Can you tell me if any engineering or technical articles have been written of the subject of Rachig rings as applicable to the oil industry?—S. H. F.

We do not know of any recent articles which give special data about the use of Rachig rings. While they were formerly quite popular for tower packing the bubble type plate has to a great extent replaced such mediums when used in condensing and absorbing towers. The Rachig rings continue to be set in the top of towers for break up purposes and to reduce carrying over.

Rachig rings are mentioned in an article in Chem. and Met. Eng., Vol. 21, page 765 (1919.) There are several references to them in Motor Fuels by Leslie as shown in the index. Comparative data including free space, absorbing surface and weight may be found on page 208 of Recovery of Gasoline from Natural Gas by Burrell.

SYNTHESIS OF GASOLINE ACCOMPLISHED

We have been informed that gasoline has been made in France by artificial means and wish to ask if this is simply a laboratory demonstration or has it approached anything like a commercial proposition?—H. P. L.

A synthesis of petroleum which appears to have a practical value, was announced last year in Paris by M. Audibert, director of the French National Research Co.

The chemist submitted a mixture of hydrogen and oxygen to a pressure of 200 atmospheres and filtered its result with the addition of a secret catalytic agent. It is declared that the product can be refined to yield gasoline, kerosene and other distillates.

It is reported that this process makes use of coal or wood and water and the results obtained were the outcome of over eight years of research by many French experts. At the time this work was announced there was a prediction by the National Bureau of Liquid Combustibles to the effect that in a short time France will no longer have to import gasoline. While the process appears to have commercial possibilities, there are several formidable difficulties to be overcome.

The present yearly consumption of gasoline in France is reported to be 1,000,000 tons, for which France pays about 3,000,000,000 francs.

Assuming that the coal process used in an attempt to manufacture sufficient gasoline should meet the needs of the nation, it is estimated that 3,000,000 or 4,000,000 additional tons of coal would be required by France for this purpose.

France now has to make up a yearly deficit in coal with purchases abroad, in addition to the reparation coal delivered by Germany. To buy this coal would require an outlay of money which would eat vitally into the saving expected from the manufacture of synthetic gasoline.

If, on the other hand, a wood process were adopted, and this is believed to have a very limited future, then France would be forced to find 3,000,000 tons of wood each year, an amount which experts think could not be provided for many years.

But what is even more important is the fact that the foreign petroleum companies pay yearly about 1,000,000,000 francs in duties and taxes. This money is received by the state without the outlay of one cent in its collection, for the oil companies pay the wages of the Board of Customs Agents engaged in the collecting.

SULPHUR AND SULPHUR COMPOUNDS CORRODE

Can acid be formed in oil while it is being used in a car? Are all forms of sulphur as they are present in lubricating oils corrosive or does the sulphur have to be in the form of an acid?—H. C. S.

The conditions under which an oil is being used are constantly changing. This fact is very marked with respect to the use of lubricating oil in an automobile engine. The different atmospheric conditions, with varying quantities of moisture, and the introduction of numerous substances which originate in the road dust all have something to do with the chemical changes that may take place in the oil. The influence of these factors have been demonstrated.

While chemical analysis very often fails to detect the presence of acid in fresh oil, it may appear after the oil has been in service. While the early refiner may have permitted traces of sulphuric acid to remain in the finished lubricating oil, there is little chance of this kind of faulty refining today. The modern refiner requires such thorough inspection that it must indeed be a very rare instance for one to find any mineral acid in unused lubricating oil.

We know that the ordinary compounds of sulphur and even sulphur itself will under proper conditions be converted into acids and acidic substances. Free sulphur is sometimes found in lubricating oil and may, in the presence of air and moisture, produce acid. Sulphur combines with the metals to form sulphides and these may be changed into oxides with the secondary result that the sulphur is set free again. Another particle of metal is changed into a sulphide and the process is thus started all over again. Of course the evidence of this sort of thing is what we call corrosion. In sections close to the sea, and in other parts where there is a proper soil condition, traces of chlorides may contaminate an oil while it is in service and some hydrochloric acid be formed in addition to the normal product, sulphuric acid.

The above is intended to indicate that an acidic condition in a used lubricating oil is usually the result of changes in the composition of the sulphur compounds in the oil and that this alteration is at the basis of most corrosion.

ANALYSIS OF 27-GRAVITY SPINDLETOP CRUDE

Will you kindly furnish analysis of Spindletop crude of 27 gravity? I wish to have the percentage of gasoline yield also of lubricants or other products obtained from this crude.—E. E.

The information below is from the United States Bureau of Mines report covering oil as obtained from the 2,700 to 3,300-foot level. This particular sample contains considerable gasoline and naphtha, although the kerosene distillate fractions are entirely lacking. The gravity is therefore fairly light for a naphthene base crude and the viscosity relatively low.

Source—Spindletop 3,024 feet.
Base—Naphthene.
Gravity—27.7 A.P.I.
Sulphur—0.19 per cent.
Viscosity—51 at 100; Saybolt Universal.
Pour test—Below 5 Fahrenheit.
Gasoline—Per cent. 11.6; gravity, 54.2.
Viscosity a. 100 Fahrenheit of vacuum—
Fractions 225-250 C., 100
250-275 C., 220
275-300 C., above 400

The deeper oils of the Spindletop Field contain much less sulphur than the shallow oil of that pool. The shallow oil contains over 2 per cent sulphur, while the deeper oils contain less than 0.2 per cent.

The carbon residue of the residuum on distillation of the shallow oil is almost 10 per cent and of the deep oil it is less than 3 per cent. This indicates that the deeper oil contains less asphalt. The quantity of asphalt and the low percentage of sulphur in the deeper oil make it a source of more valuable products and a fine grade of lubricating oil can be made from it more readily.

The deep oils differ materially in the gravities and viscosities of their lubricating distillates, the oil from the 4,000-foot level having much lighter and less viscous distillate fractions. Ten samples similar to the one described above were examined and the character of the distillation products shown to be much alike. They differ principally in the percentage of gasoline and naphtha, which varies from 5 to 17 per cent.

DETERMINATION OF HYDROGEN SULPHIDE IN GAS

Can you tell me where I may obtain directions for a simple method for estimating the hydrogen sulphide content of natural gas? An outline of the necessary calculations would be appreciated. —J. R. C.

All of the standard books on gas analysis contain methods for the determination of hydrogen sulphide in gas. Most of these require expensive apparatus. Circular 2,847 of the Bureau of Mines describes a simple method which does not require complicated apparatus. The title is Prevention of Hydrogen Sulphide Poisoning in Handling and Refining High Sulphur Petroleums, by H. C. Fowler.

The gas is collected in a dry bottle and by means of suitable connections and attachments direct titration is made with iodine in the presence of starch.

The calculations are outlined as follows:

Temperature 77 degrees Fahrenheit. One cc. 1/10 N iodine is equivalent to 0.0017038 gram hydrogen sulphide or 1.118 cc. at 32 degrees Fahrenheit and 760 mm. At 77 degrees Fahrenheit the volume is 1.22 and this is the factor for 77 degrees.

Assume the capacity of the bottle to be 1,000 cc., the volume of the gas used would be 1,000 cc. There were 5 cc. of the iodine used in the titration.

cc. iodine × Factor × 100 = per cent by volume.

From above— $\frac{5 \times 1.22 \times 100}{1000} = 0.61$ per cent hydrogen sulphide.

PROPERTIES OF BUTANE

I wonder if you have at hand the various physical constants of butane, particularly the specific heat; if so will you kindly let me have them?—J. P. C.

The constants for butane given below are based on temperature of 60 degrees Fahrenheit and a pressure of 30 inches of mercury.

Formula	C_4H_{10}
Molecular weight	58
Normal condition	gas
Boiling point	33.1
Melting point	—211
Specific gravity	2.009 (air—1)
Specific gravity at 32 F.	0.60 (water—1)
Cubic feet per pound	6.516
Pounds (avoir.) per U. S. gal. at 32 F.	4.998
Cubic feet vapor per gallon	32.56
B.t.u. per cubic foot	3,274
B.t.u. per pound	21,827
Critical temperature	303.4
Critical pressure, lbs. absolute per sq. in.	552.4
Specific heat at constant volume	0.530
Specific heat at constant pressure	0.587
Vapor pressure, lbs. per sq. in. at 80 F.	14.1

BLENDING LUBRICATING OIL

Can you tell me if there is any formula to be obtained to know the percentage of two viscosities, one of 150 another 285 at 100 degrees Fahrenheit, Saybolt viscosities, to make viscosity of 210 at 100 degrees?—L. B.

The blending of lubricating oils on the basis of viscosity may be estimated in terms of percentage by means of a blending chart which was published as an insert in The Oil and Gas Journal, March 1, 1928. According to this chart a mixture containing 46 parts of the light oil and 54 parts of the heavy oil will give an oil with an approximate viscosity of 210 Saybolt at 100 degrees Fahrenheit.

TEMPERATURE IN THE WORLD'S DEEPEST WELLS

(Continued from Page 39)

Another striking feature, was the low cost of the well, which, exclusive of salvage, was slightly less than $29,000.

This deep boring was finally plugged by the caving of the Marcellus shale between 6,720 and 6,965 feet. The tools were at the bottom of the well when the walls collapsed, enclosing not only the tools, but 4,000 feet of steel line in addition.

Apart from a small flow of gas at a depth of 820 feet, the well was free from oil, gas, and water. Even after standing for several weeks, the accumulation of

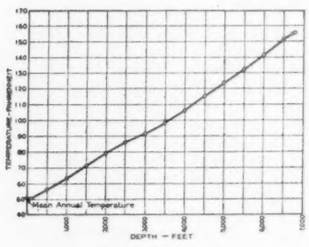

Figure 4—Depth-temperature curve of Ligonier deep well No. 1699.

water at the bottom of the well was just sufficient to be detected by means of the bailer.

The Bayard sand was found between the levels of 1,755 and 1,810 feet. From the latter depth to the bottom, the formations were lime, slate and shells interspersed with seven beds of sand, the last one reported being a hard sand from 7,312 to 7,328 feet.

Dr. I. C. White estimated that the well failed to reach the "Clinton" sand of Ohio by an interval of 600 to 800 feet. He believed that the top of the "Corniferous," or Columbus limestone of Ohio, was penetrated at a depth of 6,965 feet, being the same geologic horizon penetrated in the Goff well at a depth of 7,363 feet.

The Ligonier Deep Well

The Peoples Natural Gas Co. under the direction of Mr. John B. Tonkin, vice president, made three attempts to reach the "Clinton" sand in the Ligonier Valley near a point about 35 miles east and 8 miles south of Pittsburgh, Pa. Two of the wells, Nos. 1,588 and 1,842, are located just east of the Chestnut Ridge anticlinal, between the Lincoln highway and the Loyalhanna Creek, about 4 miles southeast of Latrobe and three-fourths of a mile northwest from Long Bridge, Pa. The other well, No. 1,699, is located on the opposite side of the Loyalhanna Creek and about 4,500 feet north of the preceding locations. Each of these wells is at an elevation of approximately 1,122 feet above sea level.

Drilling began on the first well, No. 1,588, on January 12, 1919, and was discontinued on March 3, 1920, after striking a flow of 450,000 cubic feet of gas per day, at a depth of 6,822 feet. Important sands were the Big Injun, 1525 feet; Bayard, 1,095-1,112 feet; and the Oriskany at 6,817 feet. Water was found at depths of 60 and 530 feet; shows of gas at 2,195, 2,389, 2,439, and 2,915 feet.

The second deep test, No. 1,699, was drilled during the interval from June 23, 1920, to October 3, 1924. From almost the start, the drillers had to contend with a crooked hole. The well was finally abandoned on December 20, 1924, after reaching a total depth of 6,989 feet. The Bayard sand was penetrated between the depths 1,050 and 1,065 feet. Shows of gas were found in the Elizabeth sand at 1,265 feet, and in the Third Kane sand from 3,015 to 3,030 feet. No sands were reported below 5,770 feet.

The third deep test, No. 1,842, was begun on May 23, 1922, and completed on July 3, 1925. The well is located about 515 feet southeast of No. 1,588, the first deep test in the Ligonier Valley.

The casing record is as follows: 60 feet of 13-inch, 1,111 feet of 10-inch, 3,857 feet of 8¼-inch, 6,289 feet of 6⅝-inch, and in addition, 6,794 feet of 4-inch welded tubing.

The Injun sand extended from the surface to a depth of 40 feet; the Bayard, from 1,135 to 1,165 feet. The deeper sands were identified as "Corniferous," 6,786 to 6,807 feet; Oriskany, 6,807 to 7,185 feet; Stormville, 7,185 to 7,428 feet. A dark sand from 7,578 to 7,756 feet was not identified.

A show of gas was found at a depth of 2,030 feet. From the depths 4,502, 6,827, 7,428 and 7,440 feet, a total open flow of 112,000 cubic feet per day was obtained. Most of the gas comes from the deep levels and is so contaminated with hydrogen sulphide that it is put through a purification process before being turned into the pipe line.

At the time of its completion, No. 1,842, was the deepest well in the world, having reached a total depth of 7,756 feet, or 177 feet deeper than its predecessor, the I. H. Lake, near Fairmont, W. Va. It is now the second deepest well in the world, but still holds first

Miley-Athens No. 6. The deepest producing well and the third deepest well in the world. Depth 7,591 feet.

place as the deepest gas producing well in the world.

Miley-Athens No. 6

At 2 p. m., September 25, 1925, Miley-Athens No. 6, the deepest oil producing well in the world, began flowing from the unprecedented depth of 7,591 feet. This total depth exceeds by 12 feet the depth of the Lake well, is but surpassed by Ligonier deep well, No. 1,842, which reached a total depth of 7,756 feet on July 3 of the same year. Miley-Athens No. 6 thus failed by only a few months to gain the distincation of being the deepest well in the world. It is, today, the third deepest well in the world.

The well is owned by the Miley Oil Co. of which E. J. Miley, of Los Angeles, Calif., is president and general manager. It stands at an elevation of 181.5 feet above sea level in the northwest part of the Athens Field, in Los Angeles County, Section 7-3s-13w, about midway between Los Angeles and Long Beach, Calif. Failing to find production at the usual depths in the Athens Field, namely, the upper Howard Park zone, 4,600 to 4,800; the lower Howard Park zone, 4,900 to 5,000; and the Miley zone from 5,000 to 5,300 feet; it was decided to attempt to reach the zone from which No. 1 Amstoy of the General Petroleum Corp. was producing from a depth of 6,737 feet. Although 10 faint oil sands were penetrated between the levels of 4,957 and 7,226 feet, no productive sand was found until the total depth of 7,591 feet was approached.

Drilling began on December 26, 1924, and continued almost without interruption for a period of 263 days, there being only 33 days on which work was suspended.

A 15½-inch casing was cemented at 988 feet, and an 8¼-inch casing at 5,289 feet. A 4¾-inch casing was cemented through perforations at 7,305 feet and landed at 7,591 feet, at which point drilling was discontinued.

After hanging a 2½-inch tubing at 7,537 feet, the compressor plant was started on September 23, and at 2 p. m. on September 25, 1925, the well began flowing continously, with a casinghead pressure of 1,600 pounds, and a tubing pressure of 400 pounds per square inch, with 46/64 flow bean. The initial flow indicated a potential production of 1,000 bbls. of 37-degree Baume oil, cutting approximately 16 per cent. The gas flow was estimated at 250,000 cubic feet per day. Production has continued to the present time with the use of the compressor.

No. 96 Olinda

The Chanslor-Canfield Midway Oil Co.'s deep well, No. 96 Olinda, is located at an elevation of 542 feet above sea level in the Brea-Olinda district, Lot 2, Section 8-3s-9w, Orange County, California. The location is on the south side of the Puente Hills about 1,200 feet in a southwesterly direction from the surface trace of the Whittier fault, and about 25 miles east of Miley-Athens No. 6.

Five strings of casing were used: 912 feet of 15½-inch; 3,600 feet of 11-inch; 4,691 feet of 8-inch; 5,596 feet of 6¼-inch, and 8,046 feet of 4¾-inch O.D. 16-pound seamless casing, including 2,500 feet of perforated pipe.

The object of the well was to prospect for a lower productive oil zone below the present producing zones and adjacent to the Whittier fault. It was spudded on March 13, 1925 and on April 15, 1927, the extraordinary depth of 8,201 feet was reached. No. 96 Olinda is today the deepest well in the world, exceeding by 445 feet the depth of its nearest competitor, the Ligonier well, No. 1,842, of the Peoples Natural Gas Co.

The following very interesting discussion of the geologic formations was prepared by Mr. F. C. Ripley, manager of the Chanslor-Canfield Midway Oil Co.:

Formations Encountered

"The well started in the Fernando series and above 3,400 feet penetrated numerous oil bearing measures, all of which can be assigned to the three known producing zones of the district. It is believed, but not positively known, that at about 3,500 feet the bore passed through the Whittier fault and entered the Puente series. Below that point oil and gas showings became much less frequent and no important showings were encountered until a depth of 5,618 feet was reached. Other showings were encountered at intervals to a depth of 8,201 feet, but none of them of much importance. The drillers' log through the section above 3,500 feet shows some conglomerate and boulders in the upper part of the hole and below that alternating hard sands, brown shales and oil sands with some few shells. Sandy shales began to come in evidence about 3,400 feet and the formations below that depth were reported frequently as sandy shales and hard sands.

"Cores were taken at frequent intervals and are described by the drillers generally as sandy shales or hard sands. A study of the cores in detail shows them to consist largely of hard compact micaceous gray shales, gray sandstone, hard gray finely laminated slickensided shale and very dark grayish brown shales. Both shales and standstone are sometimes very micaceous. The shales all show evidence of great compression having a strongly fissile character bordering on slaty cleavage. The standstones have little pore space, the interstices being closed by the changes which these rocks have undergone. Few fossils were found. The shales have been hardened through both partial silicification and pressure so that the organisms present were greatly distorted and shattered, making their extraction and identification very difficult. Breaking the shale resulted in fractures through the organisms rather than around them so that only crushed forms or sections through them were apparent. The lithology and meager faunal evidence indicates that the formation down to 5,300 feet was Puente in age.

"Below 5,300 feet no fossils were found in any of the cores. The character of the formation remained much the same and consisted of hard compact gray shales, fissile and thinly laminated in places, fine gray sandstones and highly bituminous black shales. A gray gravel at 5,670 feet possibly marks an unconformity."

The last core was taken at a depth of 8,133 feet.

Temperature Observations

The circulation of the fluid in rotary outfits disturbs the equilibrium of the rock temperatures to such an extent that correct measurements of temperatures cannot be made until considerable time has elapsed after drilling has been discontinued. Tests made a few feet above the bottom of the well immediately after drilling has been discontinued may perhaps give results that are approximately correct. I have not had the opportunity of verifying this suggestion. Tests made at the higher levels extending to the surface in a deep well at Bakersfield, Calif., gave results that were decidedly abnormal. With standard rig outfits, the problem is greatly simplified. Friction of the cable on the casing may produce excess heat at certain points, but, in general, the lapse of 24 hours is quite sufficient to insure temperature equilibrium in the well, except perhaps at the bottom. For some reason observers frequently attempt to make observations at the bottom of the well. Such observations have no special value and should be avoided because of the risk involved in making the tests.

During the past few years, John B. Corrin, vice president of the Hope Natural Gas Co., and John B. Tonkin, vice president of the Peoples Natural Gas Co., have very generously placed a number of their deep wells at my disposal for the purpose of making temperature tests. Some of the results are shown in Figures 1 and 5, inclusive.

The records of the Goff and Lake deep wells were among the first obtained at great depths. The general trend of these curves shows a rather marked convexity towards the depth axis which, as noted in other publications, is characteristic of temperature distributions in deep sediments. In view of the absence of fluids in these wells below shallow depths, the increase in curvature with depth may possibly be a measure of the amount of moisture held in the pores of the rocks—the amount gradually diminishing, of course, with the depth. Other conclusions may be reached depending on our assumption as to the origin and maintenance of the earth's internal heat.

Temperature Table

The following table contains the data from the three deep wells at Ligonier, Pa.:

Depth	Temperature Fahrenheit		
Feet	No. 1,842	No. 1,588	No. 1,699
100	50.7	49.9	50.7
500	55.8	55.9	56.1
1,000	63.0	63.1	63.2
1,500	70.6	71.0	71.1
2,000	78.6	77.9	79.2
2,500	85.9	86.1	86.1
3,000	93.0	93.3	91.5
3,500	100.8	100.9	98.4
4,000	107.8	108.1	106.1
4,500	117.2	116.4	115.2
5,000	127.4	126.6	123.2
5,500	137.8	137.8	133.1
6,000	148.7	148.8	141.5
6,500	158.2	.....	151.2
6,750	166.1	.....	154.7

Comparison of the numbers in the second and third column of the preceding table shows that the temperatures in wells Nos. 1,842 and 1,588 were practically identical, the temperatures at 6,000 feet, for example, being 148.7 degrees Fahrenheit in No. 1,842 and 148.8 degrees Fahrenheit in No. 1,588. In comparison with these values, the value 141.5 degrees Fahrenheit obtained at the same depth in No. 1,699 may be significant in that no production was obtained from this well. The temperature differences

first make their appearance at a depth of 3,000 feet and increase from that point quite uniformly with increasing depth.

The dotted line shown in Figure 5 represents the approximate temperature of the flowing gas. Obviously, the main sources of the gas flow are readily determined by mere inspection of the figure.

No tests were made in Miley-Athens No. 6. When I visited the well, the temperature of the oil flowing under artificial pressure was 96.2 degrees Fahrenheit. An observation of this character, however, gives us no information in regard to the temperature of the oil in the sand.

The Chanslor-Canfield Midway Oil Co. reports a temperature of 223 degrees Fahrenheit at a depth of 8,046 feet in No. 96 Olinda. From my extended series of observations in deep well, No. 5 Bastanchury, near Fullerton, Calif., I computed the value 227 degrees Fahrenheit at the same depth. The two results tend to show that the temperature at the bottom of No. 96 Olinda is not abnormal for the average rate of temperature increase in No. 5 Bastanchury, namely, 1 degree Fahrenheit in 52.1 feet, is a value of rather frequent occurrence in the oil fields of California. A higher temperature has been reported from the Springleigh bore in the Parish of Gowan, County of Mitchell, in the Blackall district of Australia, where a temperature of 230 degrees Fahrenheit was recorded at the bottom of a flowing well which had reached a depth of 5,700 feet. The temperature of the flowing water at the top of the well was 176 degrees Fahrenheit. This well ultimately reached a depth of 7,009 feet and was lined from the top to the bottom with a 5 7/32-inch casing.

Some Results of Deep Drilling

A question of fundamental importance in any kind of mining operation is the question of the temperature that may be encountered at great depths. In view of the observations thus far made in deep wells, we can make a fairly accurate prediction of the temperature that may be expected at deep levels in the oil fields. Using all of the observations made in a particular well to the depths indicated in the following, I have computed the temperatures that may be expected at a depth of 10,000 feet. The fifth column contains the hydrostatic pressures at the base of the column of water whose height equals that of a given depth. On the same basis, the hydrostatic pressure at 10,000 feet is 4,340 pounds per square inch.

Well, location—	Depth Feet	Observed temperature Fahrenheit	Pressure pounds per square inch	Estimated temperature at 10,000 feet Fahrenheit
Goff, Clarksburg, W. Va.	7,310	159.3	3,173	189.8
Lake, Fairmont, W. Va.	7,500	168.6	3,255	201.3
No. 1,842, Ligonier, Pa.	6,500	158.2	2,821	212.6
Day, Gaines Junction, Pa.	5,500	134.8	2,387	202.9
Hughes No. 1, Lost Soldier, Wyo.	1,925	144.2	835	537.1
Johnson No. 1, Longmont, Calif.	6,500	210.3	2,821	290.6
Bastanchury No. 5, Fullerton, Calif.	4,270	154.5	1,853	264.7
Henderson No. 1, Ozona, Tex.	5,500	151.4	2,387	222.6
Boston Barnet No. 1, Holdenville, Okla.	5,200	166.0	2,257	261.6

Our table reveals some interesting results. In the Appalachian oil fields, the temperature to be expected at 10,000 feet, probably do not exceed the boiling point of water at sea level (212 degrees Fahrenheit). For certain areas in Texas, Oklahoma and California, the excess above the boiling point probably ranges from 10 to 50 degrees Fahrenheit. At Langmont, Calif., the excess may amount to 80 degrees Fahrenheit, while at Lost Soldier, Wyo., we have an estimated temperature of 537 degrees Fahrenheit at 10,000 feet corresponding to an excess of 325 degrees Fahrenheit above the boiling point. The last value contains a large element of uncertainty due to the fact that it is based on observations extending to the comparatively shallow depth of 1,925 feet.

On account of the comparatively soft formations, the California wells were drilled with rotary outfits. Drilling was discontinued in No. 96 Olinda, chiefly because of the large inclination of the hole to the horizontal. Steam power was used at each of the five deep wells, with the exception of No. 96 Olinda, which was drilled with electric power. The sands near the bottom of the Ligonier well, No. 1,842, were exceedingly hard—25 minutes being the lifetime of the end of the drill bit. Actual drilling progress through the Oriskany sand was reduced to about 1 foot per day. Thus, obstacles of a rather serious nature were encountered in drilling the five deepest wells in the world. Nevertheless, the experience gained proves conclusively that present day drilling equipment is capable of drilling to greater depths—the end is not yet in sight.

The "Clinton" sand, the great objective in the eastern fields, has not yet been reached at great depths in Pennsylvania and West Virginia, nor has anyone attempted to assign a lower limit to the depth at which production may cease in California and the Gulf Coast, the area which Heald[1] designates as "the great

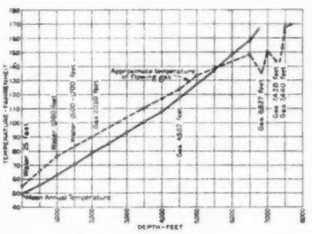

Figure 5—Depth-temperature curve of Ligonier deep well No. 1842.

bottomless areas of the United States." Hence, it is not surprising that two successes in five trials of the deepest drilling in the world has incited speculation as to the possibility of drilling to a depth of 10,000 feet.

Twenty-five years ago, a few wells were producing from a depth of 3,000 feet. Today, a large volume of production comes from depths exceeding 5,500 feet and only slightly less than 7,000 feet. Oil is being produced in California from a depth of 7,591 feet, and in Pennsylvania, gas is being produced from a depth of 7,440 feet. These remarkable achievements are merely milestones along the pathway of progress. Who can foretell the depths to which the search for deep producing horizons may lead?

Acknowledgments

I am greatly indebted to the officials of the companies represented in this paper for their very generous co-operation in various ways. Special credit is due also to the drillers and other employes who rendered valuable service while the temperature tests were being made. Most unfortunately, I failed to record some of their names in my notebook, but among them were Mr. A. L. Rawlins who drilled two of the deepest wells in the world, the Goff and the Lake; Mr. John L. Richey at the Goff well; Messrs. F. E. Mackey and Earl T. Strosnider at the Ligonier well; and Mr. F. E. Siggins who was in charge of drilling operations at the Ligonier well. It is a real pleasure to acknowledge my indebtedness to these gentlemen and to thank them for their very valuable co-operation.

[1]Heald, K. C. How deep can we drill and to what? The Oil and Gas Journal, page 32, October 8, 1925.

OIL SECURITIES IN UPWARD MOVEMENT

(Continued from Page 150)

wards of 230,000 bbls. daily, about 10 per cent of the country's total production. Pipe line business has always been highly profitable when lines were kept busy. With Humble forming one of the most important arms of Standard of New Jersey, the biggest refiner in the country, in supplying its plants with crude oil, Humble's lines are kept running at capacity. Pipe line department probably earned most, if not all, of Humble's $9,000,000 net last year as producing and refining was not profitable. Improved gasoline prices this year help big companies like Humble and, in addition, pipe line business is larger than last year."

WEST TEXAS FIELDS

(Continued from Page 46)

Landreth Prod. Co.:		
Cowden-Anderson	16	8,419
Magnolia Petroleum Co.:		
University-Hardwicke	14	2,293
University-O'Keefe	12	2,085
State-Lasseter	3	63
Magnolia and others:		
University	4	51
Pecos Oil Co.:		
University	16	3,008
Prairie O. & G. Co.:		
University	5	*532
State-Lasseter	7	*8,282
Simms and Atlantic:		
University-A	9	*1,729
University-B	1	50
University-C	8	*3,691
University-D	12	*3,807
University-E	1	153
Sidham & Thrasher:		
University	1	4
The Texas Company—		
University	1	174
University-Beasley	1	25
Tidal Oil Co. and others:		
University-B	2	43
University-C	1	28
University-E	1	71
University-F	8	*813
University-G	3	†0
University-H	2	4
University-I	8	*2,369
Total Church and Fields		
Pool	236	64,787
Average per well		274
Miscellaneous Crane County		
Gulf Prod. Co.:		
Waddell	1	20
McMan O. & G. Co.:		
Hughes	2	56
Marland Oil Co.:		
All leases	14	496
The Texas Company:		
King	9	193
Union Land Co.-F.	1	36
Miscellaneous total	29	800
Grand total Crane County	265	65,587
Average per well		247
Pecos County		
Pandem Oil Co., et al:		
Pecos River Bed	7	222
California Oil Co.:		
Yates, Lease 1	13	3,294
Smith, Lease 1	1	219
Smith, Lease 3	11	4,676
Gulf Production Co.:		
All leases	11	6,101
Humble O. & G. Co.:		
M. A. Smith	6	1,926
M. A. Smith-B	4	1,551
Kirby Pet. Co.:		
J. H. Tippett	1	30
Kirby Pet. Co. & Edson:		
J. H. Tippett	1	221
Marland Oil Co.:		
Yates-A	10	1,009
Mazda & Savoy Oil Co.:		
M. A. Smith	1	288
McMan & Marland:		
Yates	15	3,573
McMan O. & G. Co.:		
J. H. Tippett	2	447
Mid-Kansas & Trans.:		
Yates-A	15	3,550
Yates-B	24	4,884
Yates-C	9	2,116
Yates-D	2	998
Yates-E	1	132
Yates-F	1	93
Smith	2	76
Smith-Taylor	11	5,170
Phillips Pet. Co.:		
Smith	1	119
Red Bank Oil Co.:		
Smith	2	480
Roxana Pet. Corp.:		
Tippett	7	2,786
Smith	5	1,197
Skelly Oil Co.:		
Tippett	1	45
Simms Oil Co.:		
Smith	6	2,903
Texon O. & L. Co.:		
Yates	2	0
Total Yates Field	170	48,106
Average per well		283
Winkler County		
Atlantic O. P. Co.:		
Grisham-Hunter	6	5,182
Grisham-Hunter-E	1	1,200
Ida Hendricks	1	320
Ida Hendricks-D	3	*3,255
Atlantic & Collett:		
Ida Hendricks-F	2	*5,860
California Co.:		
Ida Hendricks	6	5,345
Cranfill & Reynolds:		
Ida Hendricks	2	2,050
Grisham-Hunter-B	1	145
Hendricks-C	1	*15,503
Gulf Prod. Co.:		
T. G. Hendricks	8	13,803
Humble O. & R. Co.:		
Grisham-Hunter	7	*14,765
Ida Hendricks-B	5	4,187
Independent O. & G. Co.:		
E. W. Cowden	1	48
Grisham-Hunter	7	*5,164
Grisham-Hunter-B	3	*5,194
Hendricks	1	32
Ida Hendricks-B	1	265
Landreth Prod. Corp.:		
Grisham-Hunter	2	5,984
Ida Hendricks-A	2	4,892
Magnolia Pet. Co.:		
Ida Hendricks	6	3,010
Murchison & Cranfill Bros.:		
Grisham-Hunter	2	135
Grisham-Hunter-C	1	82
Grisham-Hunter-B	2	654
Republic Prod. Co.:		
Grisham-Hunter-A	2	*3,951
Grisham-Hunter-B	1	20
Roxana & Llana:		
Scarborough	1	Shut in
Roxana Pet. Corp.:		
Grisham-Hunter-A	2	*5,572
Grisham-Hunter-D	4	*4,718
Ida Hendricks-B	2	*3,760
Ida Hendricks-C	7	*14,633
Southern Crude Co.:		
T-67 Hendricks-A	1	185
T-67 Hendricks-C	5	935
T-67 Hendricks-B	2	825
T-67 Hendricks-3-B	2	*17,460
T-67 Hendricks-F	3	2,449
T-68 Ida Hendricks-A	1	0
T-88 Ida Hendricks-A	2	1,415
T-88 Hendricks-B	2	5,810
T-88 Ida Hendricks-C	6	2,257
T-88 Ida Hendricks-H	1	2,860
T-88 Ida Hendricks-I	1	1,152
Texon O. & L. Co.:		
Grisham-Hunter-A	2	*5,625
Grisham-Hunter-B	2	4,195
Pure Oil Co.:		
Grisham-Hunter	5	3,740
Grisham-Hunter-B	3	2,695
Total Winkler County	131	183,332
Average per well		1,432.2

*Pinched in. †No. 2 shut in.

DIFFICULTIES INCREASE IN RUSSIAN FIELDS

(Continued from Page 36)

335,000 tons of oil per annum. It is expected that these will be in working order by April. The new installations have been planned by local engineers, all the fittings having been manufactured in Soviet factories.

The production for February is returned by "Grozneft" as 240,844 tons, or 86 per cent of the total anticipated. The output from the refineries is stated to be 241,046 tons. Only 3,560 meters were drilled, or 71 per cent of the program. The short month and severe frosts are the reasons given for the nonfulfillment of the program, but hopes are expressed that the year's program will not be affected.

Trans-Caucasian Purchasers

Details of the various oil products exported to Trans-Caucasia are given below:

	1925-26 Tons	1926-27 Tons
Fuel oil	164,229.0	170,416.2
Gasoline	1,168.5	1,515.4
Kerosene	45,103.8	49,471.7
Lubricants	3,763.6	3,442.9
Other products	1,764.8	1,711.5
Total	216,029.7	226,557.7
Georgia		
Fuel oil	27,758.5	27,405.4
Gasoline	1,597.7	1,604.4
Kerosene	27,005.3	33,487.8
Lubricants	1,286.5	1,276.9
Total	57,648.0	63,774.5

The Trans-Caucasian Railway is the largest consumer of oil products from the Baku district. In 1926, this railway consumed a total of 221,645 metric tons of all petroleum products while in 1927, 343,581 tons were consumed or a gain of some 55 per cent. The explanation given is that of increased freight traffic, chiefly oil products for foreign export.

The Tariff (freight) Committee has decided to reduce the freight on railborne kerosene (Baku to Batum) destined for export, from the existing charge of 17 copecks to 14 copecks per pood. The Naphtha Syndicate was requested to reduce the freight on kerosene with a high flash point, which cannot be pumped by pipe line on account of its special properties.

Grozny-Touapse Pipe Line

A report on the progress of the construction of this pipe line during the first quarter of 1927-28 states that the work proceeded during the whole of October but only partly in November; cold weather causing a suspension of work.

Owing to difficulties experienced in the delivery of apparatus, it will be impossible to complete the construction of the line by October 1, 1928. The chief delay concerns the delivery of Diesel engines and pumps by the metal trusts; for instance, only two engines were delivered in December instead of eight. The same thing applies to pumps; according to contract deliveries should have commenced in January but actually they will not commence earlier than April.

It is now stated, with great reserve, that the pipe line may be completed by January 1, 1929.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 44)

Empire G. & F. Co.'s No. 1 Holmes, C NE, Sec. 179, Blk. 3, I.&G.N. Sur. ..... Rig.

Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 acres of SW¼, Sec. 84 H.&T.C. Sur., Blk. B-2 ..... Set 8-in., 2,208 ft; drlg., 2,929 ft; 6,000,000 ft. gas, 2,654-2,795 ft.

Gibson Oil Corp.'s No. 9 J. B. Bowers, NE cor. Sec. 92, Blk. B-2, H.&G.W. Sur. ..... Fish. for 5-in. csg., 2,733 ft.

Gibson Oil Co.'s No. 1 G. Pierce, SE cor. Sec. 149, Blk. B-2, H.&G.N. Sur. ..... Rig.

Gulf Prod. Co.'s No. 4 J. B. Bowers, SE SW SW, Gulf lease in Sec. 89, Blk. B-2 ..... G.W., 3,107 ft; swbd. 95 bbls.

Gulf Prod. Co.'s No. 5 J. B. Bowers, SW SE SW, Gulf lease in Sec. 89, Blk. B-2 ..... 1,600 ft. oil G.W., 3,190-3,225 ft.

Gulf Prod. Co.'s No. 1 M. Davidson-A, 330 ft. from S and E lines of NW cor. E half NW, Sec. 87, Blk. B-2, H.&G.N. Sur. ..... C.O., 3,088 ft.

Gurney Oil Co.'s No. 2 B. E. McKinney, Sec. 163, Blk. 3, I.&G.N. Sur. ..... Show oil, 3,025-30 ft; spraying 40 bbl. daily; drlg., 3,290 ft.

Hardendorf Drlg. Co.'s No. 1 G. A. Henderson, NE E half NE, Sec. 47, Blk. 25, H.&G.N. Sur. ..... Run. 10-in. csg., 590 ft; S.D.

Hickory O. & G. Co.'s No. 1 Lester, SE cor. NW NW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Drlg., 1,140 ft.

Lefors Pet. Co.'s No. 2 J. M. Shaw, NW cor. T. Leach Sur. ..... Cmt. 8¼-in. csg., 1,871 ft.

McElroy Oil Co.'s No. 1 M. B. Davis, NE cor. S 240 acres of E half, Sec. 12, Blk. 1, A.C.H.&B. Sur. ... Drlg., 930 ft.

Majestic Oil Co.'s No. 6 J. B. Bowers, Sec. 89, Blk. 2-B ..... S.O., 3,700 ft; show wtr., 3,450-55 ft; drlg., 3,940 ft.

Magnolia Pet. Co.'s No. 1 J. Bowers ..... Made 100 bbls. daily from G.W., 2,853-55 ft.; swbd. 206 bbls. last 24 hrs; T.D., 3,040 ft; to d.d.

Magnolia Pet. Co.'s No. 1 E. R. Eakins, SW cor. NW, Sec. 56, Blk. 25, H.&G.N. Sur. ..... Location.

Magnolia Pet. Co.'s No. 1 W. Harrah, NW cor. NW, Sec. 150, Blk. 3, H.&G.N. Sur. ..... Rig.

Operators Oil Co.'s No. 2 W. Jackson, NW cor. N half NE, Sec. 88, Blk. B-2 ..... Flowing and swbng. 400 bbls. daily, 2,851-68 ft; T.D., 2,910 ft; run liner.

Osborn et als' No. 1 E. E. Barrett, SE cor. NE, Sec. 111, Blk. 3, I.&G.N. Sur. ..... Drlg., 2,130 ft.

Osborne et als' No. 1 J. S. Morse, SW cor. SE, Sec. 1, Blk. 26, H.&G.N. Sur. ..... Rig.

Parker et als' No. 1 Mrs. M. Parker, 990 ft. S and W NE cor. S 360 acres, Sec. 9, E. N. Lynch Sur. ..... Cellar.

Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3.. 700 ft. wtr., 3,430 ft; S.D., 3,422 ft.

Phillips Pet. Co.'s No. 1 Davidson (Myson) ..... Cmt. 6-in., 3,100 ft; drlg. G.W., 3,190 ft.

Phillips Pet. Co.'s No. 2 Davidson (Myson) NE cor. NW NW, Sec. 87, Blk. B-2, H.&G.N. Sur. ..... Cmt. 8-in., 2,943 ft; drlg. G.W., 3,025 ft.

Phillips Pet. Co.'s No. 3 Jackson-Riley, Sec. 88, Blk. B-2, H.&G.N. Sur. ..... Recmntd. 12½-in., 1,027 ft; 6,000,000 ft. gas, 2,590-2,635 ft; cmt. cmt. 8¼-in. csg., 2,857 ft; drlg., 3,154 ft.

Phillips Pet. Co.'s No. 4 Jackson-Riley, SE cor. W half SW, Sec. 88, Blk. B-2 ..... Drlg., 1,800 ft.

Phillips Pet. Co.'s No. 1 C. Reiger-Davidson, NW cor. Sec. 87, Blk. B-2, H.&G.N. Sur. ..... Spudding.

Plains Drlg. Co. and Ray's No. 1 C. Chapman, SE cor. SW NW, Sec. 50, Blk. A-9, H.&G.N. Sur. ..... Drlg., 2,525 ft.

Plains Drlg. Co.'s No. 2 B. Chapman, NE cor. E half NE, Sec. 20, Blk. 1, A.C.H.&B. Sur. ..... Drlg., 320 ft.

Plains Drlg. Co.'s No. 1 A. Chapman, 990 ft. N and 330 ft. W SE, Sec. 24, J. Davidson Sur. ..... Drlg., 2,010 ft.

Prairie O. & G. Co.'s No. 1 W. Harrah, NE cor. N 80 acres, E 240 acres, Sec. 163, Blk. 3, H.&G.N. Sur. .. Bldg. derrick.

Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft. oil; T.D., 2,841 ft.

Ray & Massie's No. 2 A. Chapman, SE cor. SW, Sec. 51, Blk. 25 ..... Drlg., 1,300 ft.

Scott & Travis' No. 1 A. Chapman, 990 ft. N and W of SE cor. N half SW, Sec. 70, Blk. 25, H.&G.N. Sur.. Drlg., 2,000 ft.

St. Clair Oil Co.'s No. 1 C. H. Rowe ..... Spudded and S.D.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Shamrock Oil Co.'s No. 1 Chapman, NE E half SW, Sec. 50, Blk. 25 ..... 10,000,000 ft. gas, 2,695-2,715 ft; show oil, 2,763-73 ft; 1 bailer wtr. and little oil per hr; T.D., 3,140 ft; P.B., 2,800 ft.

Shamrock Oil Co.'s No. 2 A. Chapman, NW cor. NE, Sec. 50, Blk. 25, H.&G.N. Sur. ..... Spud.

Skelly Oil Co.'s No. 1 Bradford, NE cor. Sec. 113, Blk. B-2, H.&G.N. Sur. ..... 12,000,000 ft. gas, 2,765 ft; swbd. 38 bbls. 12 hrs., 2,944-90 ft; T. D., 3,245 ft; to d.d; show oil, 3,222-27 ft.

Spartan Oil Co.'s No. 1 J. Hopkins ..... S.D., 2,240 ft.

Sullivan et als' No. 1 A. Chapman-A ..... 23,000,000 ft. gas, 2,280-2,300 ft; S.O., 2,345 ft; fish., 3,039 ft; corrected.

Sullivan et als' No. 1 S. A. Cobb, NE cor. NW, Sec. 64, Blk. 25, H.&G.N. Sur. ..... Drlg., 2,350 ft.

Sullivan Oil Co. et als' No. 1 M. Huselby, NW cor. E half NW, Sec. 55, Blk. 25, H.&G.N. Sur. ..... Location.

Sun Oil Co.'s No. 1 Jackson ..... Top lime, 2,035 ft; 1,300 ft. oil, 2,135-45 ft.

Staggers Oil Co.'s (was Ruby Oil Co.'s) No. 1 B. F. Tally T.D., 635 ft; S.D.

The Texas Co.'s No. 3 J. B. Bowers ..... Fish., 2,765 ft; 44,000,000 ft gas.

The Texas Co.'s No. 4 J. B. Bowers, SE cor. SE, Sec. 93, Blk. B-2 ..... Cmtd. 8¼-in. csg., 2,103 ft; cmtd. 6-in., 2,965 ft; swbd. 55 bbls. 24 hrs., 3,148-58 ft.

The Texas Co.'s No. 1 M. B. Davis, SE cor. NE, Sec. 8, Blk. 1, A.C.H.&B. Sur. ..... Drlg., 2,630 ft.

The Texas Co.'s No. 1 C. Thut, C N half of E 320 A. Sec. 1, H.&G.N. Sur. ..... 10,000,000 ft. gas, 2,436-40 ft; making 1 bailer 42 grav. oil per hr., 2,806-15 ft; 1,000 ft. salt wtr., 4,355-67 ft; T.D., 4,369 ft.

The Texas Co.'s No. 2 C. Thut, SE NW SE, Sec. 1, H.&G.N. Sur. ..... Rig.

The Texas Co.'s No. 1 J. E. Williams, NW cor. NE NW, Sec. 7, Blk. 1, A.C.H.&B. Sur. ..... Cmt. 8-in., 1,837 ft; drlg., 2,290 ft.

The Texas Co.'s No. 2 Williams, C NW, Sec. 6, Blk. 1, A.C.H.&B. Sur. ..... Rig.

Tobias Oil Corp.'s No. 1 W. H. Taylor, C NE, Sec. 10, Blk. B-2, (formerly Smallwood et als') ..... T.S., 765 ft; drlg., 2,050 ft.

Viola Oil Corp.'s No. 1 G. H. Saunders ..... Hole full wtr., 3,130-38 ft.

HALE COUNTY

Bailey & Young's No. 1 Thomas, Sec. 1, Blk. J.K.L. ... S.D., 175 ft.

Donnell Pet. Co.'s No. 2 Mullican, NW cor. Sec. 66, Blk. A-3, I.&S.B. Sur. ..... Top pay in sandy shale, 495 ft; ½ bailer oil and 3 bailers wtr. per day; S.D., 620 ft.

Donnell Pet. Co.'s No. 1 Mullican, C, Sec. 21, Blk. B, R. M. Thompson Sur. ..... 200 ft. fluid in hole from 407-14 ft; S.D.

Explin. Co.'s No. 1 Goodman ..... S.D., 350 ft.

A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from E line and 1,200 ft. from S line, Sec. 17, Blk. X, John Glynn Sur. ..... S.D., 1,140 ft.

Tolbert & Simms' (was Gouldy & Stone's) No. 1 Kitteral, SE cor. NW, Sec. 65, Blk. A-3, G.C.&S.F. Sur... S.D., 485 ft.

HALL COUNTY

Briscoe Oil Assn.'s (was Seifert et als') No. 1 Owens, C NE, Sec. 179, Blk. S-5, Dennison & Pacific Sur.. Spudded and S.D.

HANSFORD COUNTY

Caldwell et als' No. 1 J. Adriance est. ..... U.R. pipe, 2,006 ft.

Oklavania et als' No. 1 Coots, Sec. 13, Blk. 45, H.&T. C. Sur. ..... Run, 6-in; 900 ft. wtr., 2,940 ft; T.D., 3,063 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood ..... S.D., 1,455 ft. to install rotary.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 7 Lee Bivins "A," C NE, Sec. 7, Blk. 25, E.L.R.R. Sur. ..... Cellar.

Amarillo Oil Co.'s No. 8 Lee Bivins "A," 100 ft. E of CWL, Sec. 4, Blk. 25, E.L.R.R. Sur. ..... Rig.

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... Cellar.

HUTCHINSON COUNTY

Alamoso Oil Co.'s No. 2 J. M. Sanford, Sec. 83, Blk. 46, H.&T.C. Sur. ..... Drlg., 1,625 ft.

R. G. Barnum et als' No. 1 Garland Sanford, Sec. 78, Blk. 46 ..... Rig.

Barnum & Delmar's No. 1 Johnson Bros., NW cor. E half NW, Sec. 37, Blk. Y, A.&B. Sur. ..... Drlg., 400 ft.

Beam et als' No. 1 Cockrell, Sec. 3, Blk. 23 ..... S.D., 405 ft. for orders.

Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. Y.... S.D., 750 ft.

Conklin et als' No. 1 Johnson, Sec. 1, Blk. X03, H.&O. B. Sur. ..... S.D., 600 ft.

Dixon Creek Oil Co.'s No. 1 Burnett est., NW cor. of E 240 A of N 320 A, Sec. 120, Blk. 5, I.&G.N. Sur. .. 6,000,000 ft. gas, 2,775 ft; small show oil, 3,060-65 ft; T.D., L. 260 ft; plugged back to 3,118 ft; C.O.

Friedman et als' No. 1 J. O. Bost, SW cor. Sec. 9, Blk. Y-2, T.T.R.R. Sur. ..... Fish., 150 ft.

Gulf Prod. Co.'s No. 40, C. L. Dial et al, 925 ft. N, 463 ft. E SW cor. John W. King Sur. ..... Drlg., 190 ft.

Gulf Prod. Co.'s No. 41 C. L. Dial et al, Sec. 130, Blk. Z, E.L.&R.R. Sur. ..... Drlg., 125 ft.

Harris et als' No. 1 J. Q. Bost, Sec. 10, Blk. Y-2, T.T. R.R. Sur. ..... 20,000,000 ft. gas; S.D., 2,710 ft.

Holmes & Quinn's No. 1 J. K. Quinn, SW cor. Sec. 9, Blk. 3, B.S.&F. Sur. ..... Small show oil, 3,010 ft. in lime; T.D., 3,142 ft; P.B. to shoot.

McKinney Gas Co.'s No. 1 F. P. Works, SW cor. Sec. 5, Blk. Y-2, T.T.R.R. Sur. ..... Set 12-in., 800 ft.

Phillips Pet. Co.'s No. 2 Garland, Sec. 77, Blk. 46 ..... Drlg., 1,025 ft.

Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur. ..... T.A., 4,445 ft.

Phillips Pet. Co.'s No. 2 Chap, NE cor. E 80 acres of the S 160 acres of Sec. 78, Blk. 46 ..... Drlg., 1,010 ft.

Phillips Pet. Co.'s No. 2 Land, NW cor. of E 40 acres, N 80 acres of S 320 acres, Sec. 83, Blk. 46 ..... Drlg., 489 ft.

Skelly Oil Co.'s No. 2 Armstrong & Byrd ..... Set 12-in. csg., 1,425 ft; cmtd. 10-in. csg., 1,553 ft; drlg., 2,900 ft; small show gas, 2,815-25 ft.

Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson ..... 800 ft. oil in hole from 3,146 ft; drilled to 3,130 ft; shot with 60 qts., 3,125-60 ft; bridged; no increase in oil after deepening; pumped 25 bbls. in 5 hrs; to put on gas lift for test.

Timms & Dietsch's No. 1 C. R. Garner, NE cor. W 80 A of SE, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Bldg. rig; S.D.

Wendell et als' No. 1 Johnson Bros., Sec. 1, Blk. X03 ... Set 10-in. csg., 2,035 ft; and S.D.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. ..... Hole full wtr., 3,375 ft; U.R. 6-in. csg., 4,035 ft.

A. L. Pattison's No. 1 Patton ..... Slight show gas, 2,115-30 ft; fish., 3,410 ft.

LAMB COUNTY

Dan Freel et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Spudded and S.D.

Spade Oil Co.'s No. 1 Andrews, 1,085 ft. from N line and 200 ft. from E line, Labor 23, League 643, (5 miles NE of Littlefield) ..... Spudded and S.D.

Tolbert & Simms' No. 1 Ellwood, NE SW SW, Sec. 14, Blk. B, R. M. Thompson Sur. ..... 712 ft; small show oil and hole full wtr.; dry, 1,504 ft; temp. abd.

LIPSCOMB COUNTY

McCorkle's No. 1 A. Barton, NE cor. Sw SE, Sec. 504, Blk. 43, H.&T.C. Sur. ..... Wtr. in lime, 4,126-40 ft; 6-in. set, 4,155 ft; 5 3/16-in. csg. set, 4,420 ft; S.D., 4,775 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ..... Small show oil, 1,133-40 ft. in sand; S.D., 2,730 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Thompson-Amarillo, C, Sec. 22, Blk. 26, E.L.&R.R. Sur. ..... Cmtng. 12-in. csg., 1,320 ft; drlg., 1,600 ft.

Amarillo Oil Co.'s No. 1 J. T. Sneed, Jr., C W 640 A, Horace Hall Sur. ..... Bldg. rig.

Amarillo Oil Co.'s No. 1 D. P. Seay, C, Sec. 85, Blk. 2, G.&M. Sur. ..... Run. 20-in., 100 ft.

Amarillo Oil Co.'s No. 1 L. H. Crawford, C SE, Sec. 26, Blk. P. M., E.L.R.R. Sur. ..... Run. 15¼-in., 560 ft.

Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21. T.D., 2,520 ft; recmtd. csg., 2,636 ft.

MOTLEY COUNTY

Explin. Co.'s No. 1 Burleson ..... Spudded and S.D.

Explin. Co.'s No. 1 Tillson ..... S.D., 750 ft. for repairs.

Explin. Co.'s No. 2 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. ..... S.D., 1,002 ft.

Explin. Co.'s No. 3 Matador Land & Cattle Co., C SE, Sec. 21, Blk. O-2, W.T.R.R. Sur. ..... Rig on ground.

Matador Oil Corp.'s (formerly Wheeler et als') No. 1 C. D. Bird, SW cor. NW, Sec. 4, Blk. S, Stephens Sur... Fish., 555 ft.

OCHILTREE COUNTY

W. G. Burton's No. 1 Strickler ..... S.D., 4,010 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1 Masterson-K, C SW, Sec. 85, Blk. O-18, D.&P.R.R. Sur. ..... Recmtng. 12½-in. csg., 1,000 ft; show gas, 1,650 ft; T.D., 2,440 ft; S.D; 10,000,000 ft. gas showing little wtr., 1,650-60 ft. and 2,215-90 ft; run. 6-in., 2,440 ft; drld., 2,480 ft.

Amarillo Oil Co.'s No. 1 Fuqua, C NW, Sec. 13, Blk. 6, B.S.&F. Sur. ..... Drlg., 3,000 ft.

Amarillo Oil Co.'s No. 6 Lee Bivins-A, NW cor. NW, Sec. 32, Blk. B-11, E.L.R.R. Sur. ..... Cellar.

Amarillo Oil Co.'s No. 1 Lee Bivins-E, C NW, Sec. 27, Blk. O-18, D.&P.R.R. Sur. ..... Rig.

RANDALL COUNTY

Westbrook Oil Co.'s No. 1 J. Beckman, SW cor. SE NE, Sec. 46, Blk. B-5 ..... S.D. for orders, 3,712 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Show gas, 4,990 ft; show oil, 4,992 ft; csg. set, 4,992 ft; T.D., 5,153 ft; set 3-in., 5,155 ft; S.D., 5,240 ft.

SWISHER COUNTY

Adams & Pritchard's No. 1 Crawford, Sec. 39, Blk. W-1, T.T.R.R. Sur. ..... S.D., 440 ft.

WHEELER COUNTY

Angus et als' No. 1 T. Trostle, C NE NW, Sec. 90, Blk. 17, H.&G.N. Sur. ..... Rig.

Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... Fish., 10-in. csg., 850 ft.

Chapman & Morgan's No. 1 Otis Hatcher, NW cor. SW SE, Sec. 63, Blk. 17, H.&G.N. Sur. ..... Rig.

Clark et als' No. 1 J. D. Purcell, C NW SW, Sec. 51, Blk. H.&G.N. Sur. ..... 1,000,000 ft. gas, 1,710 ft; drlg., 1,820 ft.

Hatcher et als' No. 3 fee, C SW SW, Sec. 80, Blk. 23, H.&G.N. Sur. ..... Drlg., 1,275 ft; show gas, 1,270 ft.

Rook et als' (was Foster et als') No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ..... T.L., 3,040 ft; S.D., 3,607 ft.

L. W. Rook's No. 1 M. Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig on ground.

Smith Brady et als' No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... S.D., 2,120 ft. for orders.

Vaughn et als' No. 1 B. Woodley, C SW NW, Sec. 21, Blk. 24, H.&G.N. Sur. ..... Location.

Vaughn et als' No. 1 A. Wood, C NW SW, Sec. 21, Blk. 24, H.&G.N. Sur. ..... Location.

Kaufold et als' No. 1 E. R. Wallace ..... S.D., 300 ft.

Wischkamper's No. 1 Brown-Young, C NW NE, Sec. 55, Blk. 23, H.&G.N. Sur. ..... Cellar.

Wischkamper's No. 1 Gooch-Close, Sec. 81, Blk. 23, H. &G.N. Sur. ..... Spudding.

Pete Woodley's No. 1 J. Boyle ..... Show gas, 1,700 ft; run. 5-in; T. D., 2,217 ft; 1,000 ft. oil and considerable wtr., 2,173 ft.

Fundamental Research in Petroleum

General Discussion of the Subject, With a Resume of the Fundamental Research Program of the American Petroleum Institute

By Dr. R. P. Anderson*
American Petroleum Institute

To investigate crude petroleum to determine what chemical substances are present, and what their properties are, is fundamental research. On the other hand, to investigate a crude petroleum from the point of view of the percentages of commercial products or the method of treatment to yield products of satisfactory quality, is applied research.

Such a classification has its value, but it will readily be appreciated that there is no sharp line of demarcation between the two classes.

As far as the petroleum industry is concerned, a beginning in co-operative fundamental research has been made, although up to the present time this research is co-operative only with respect to procedure and to the fact that the results are made available to all interested, the necessary financial support having been derived from two sources only. I refer to the A.P.I. research fellowships made possible by John D. Rockefeller and the Universal Oil Products Co.

On November 15, 1925, John D. Rockefeller established a fund under the auspices of the institute for fundamental research in the geology, physics and chemistry of petroleum, amounting to $250,000, payable in annual installments of $50,000 each over a period of five years. On January 12, 1926, the Universal Oil Products Co. made available an additional sum of $250,000 for the same purpose and payable in the same fashion.

Early in 1926, the institute requested the assistance of the National Research Council, "an organization to foster, encourage and co-ordinate co-operative research," in the proper administration of these two funds, with the result that the council established the Central Petroleum Committee with three members each from the Divisions of Chemistry and Chemical Technology, Physical Sciences, and Geology and Geography of the Council, and three members representing the American Petroleum Institute.

[1]The present membership of the committee is as follows: Hugh S. Taylor, chairman, Princeton University; L. H. Adams, secretary, Carnegie Institute; R. P. Anderson; Martson T. Bogert, Columbia University; Everett deGolyer, Amerada Petroleum Corp.; K. C. Heald, the Gulf Companies; Van H. Manning; R. A. Millikan, California Institute of Technology; R. L Welch; David White, National Research Council; Frank C. Whitmore, National Research Council.

This committee received and considered applications for fellowships in universities and other qualified institutions, and recommended the first year's program involving the expenditure of about $100,000.

These projects were instituted for the most part during the period July 1, 1926, to January 1, 1927, and all of them were under contract for one year.

In the second year of this program, which comes to a close June 30, 1928, most of the first year projects were continued from the expiration of the first contract to the end of the second fiscal year, although a few dropped out and a few new ones were added.

Closer Contact Needed

It has been felt for some time that there should be a closer contact between the technologists of the petroleum industry and this program of fundamental research, and as a result of a round table discussion held at the 1927 annual meeting of the institute in Chicago, there has been appointed an Institute Committee on Fundamental Research, with many of the leading petroleum technologists of the country as members.[2] The chemists, physicists and geologists of the Central Petroleum Committee bring to the problem of determining how to spend our limited research funds most wisely, the experience of years as leaders in research in their respective fields and a knowledge of the personnel and material facilities of the various educational institutions and other organizations to which fellowships may appropriately be assigned; while the petroleum technologists are particularly qualified to judge of the probable degree of importance of the many research projects presented for consideration and to assist in the prosecution of the actual research by furnishing the proper sort of raw material where needed and, in many cases, by making available information as yet unpublished.

The complete and hearty co-operation of the National Research Council and the American Petroleum Institute, through the Central Petroleum Committee on the one hand the Committee on Fundamental Research on the other, should ensure that the best possible results will be obtained from this venture in research.

A point that should be made clear in this connection is that the co-operation of all of the technologists of the petroleum industry is desired, and not merely those who are members of the Committee on Fundamental Research. It is important to have the committee—the attempt was made to secure the advice of petroleum technologists through the A.P.I Bulletin before the committee was formed, but without much success—and the committee to be effective must be kept reasonably small, but the assistance of all petroleum technologists is needed and desired.

The results of this fundamental research are to be made available to the public, and all who are interested in petroleum research are requested to submit their suggestions regarding the program. Many will have information (as yet unpublished) bearing upon some specific project, which can properly be furnished to those interested in order that best progress can be made.

Projects in Force

At the present time there are 37 projects in force, distributed among 17 university and governmental laboratories as follows: (Number, title, director and location given in order.)

1. The Generation of Oil in Rocks by Shearing Pressures, Warren J. Mead, University of Wisconsin, Madison, Wis.

2. Action of Oxygen (and Air) on Cyclopentane and Cyclohexane Hydrocarbons with Side Chains, Georges Chavanne, professor of chemistry, University of Brussels, Brussels, Belgium.

3. Studies of Source Rocks in the Microfurnace, David T. White, senior geologist, United States Geological Survey, Washington, D. C.

4. Origin and Environment of Source Sediments, advisory committee.

5 Diatoms as Source of Oil, C. F. Tolman, Stanford University, Palo Alto, Calif.

6. The Separation, Identification and Determination of the Chemical Constituents of Commercial Petroleum Fractions, E. W. Washburn, Bureau of Standards, Washington, D. C.

7. Catalytic Methods Applied to Petroleum Hydrocarbons, H. S. Taylor, Princeton University, Princeton, N. J.

8. The Effect of Electric Discharge Upon Gaseous Hydrocarbons, Samuel C. Lind, University of Minnesota, Minneapolis, Minn.

9. Analysis of Hydrocarbons by the Time Positive Ray Method, Robert A. Millikan, California Institute of Technology, Pasadena, Calif.

10. Analysis of the Gradual Oxidation Prior to Ignition of Fuels in Internal Combustion Engines, and the Relation of Such Oxidation to Detonation, Robert A. Millikan, California Institute of Technology, Pasadena, Calif.

11. Accurate Comparison by Viscosity Methods Developed by Millikan of the Viscosities and Hence of the Mean Free Paths of Ring and Chain Hydrocarbons of the Same Molecular Weight and Composition, Robert A. Millikan, California Institute of Technology, Pasadena, Calif.

13. Preparation of Pure Typical Hydrocarbons and a Study of Their Behavior When Heated Alone and With Catalysts, Howard J. Lucas and Arthur A. Noyes, California Institute of Technology, Pasadena, Calif.

15. Isolation and Investigation of Thermo Labile Hydrocarbons Present in Petroleum, James B. Conant, Harvard University, Cambridge, Mass.

16. Isolation and Study of the Sulphur Compounds Present in Petroleum, Frank C. Whitmore, Northwestern University, Evanston, Ill.

17. Noncatalytic Thermal Decomposition of Pure Hydrocarbons and Related Compounds, Charles H. Hurd, Northwestern University, Evanston, Ill.

18. A Study of the Relative Rates of Reaction of the Olefins, Harold S. Davis, Massachusetts Institute of Technology, Cambridge, Mass.

19. Isolation and Investigation of Nitrogen Compounds Present in Petroleum, J. R. Bailey, University of Texas, Austin, Tex.

22. Limestones and Dolomites as Reservoir Rocks, A. H. Daniels, University of Illinois, Urbana, Ill.

23. Structural Relations of Beds That Are Separated by Converging Strata, V. E. Monnett, University of Oklahoma, Norman, Okla.

24. Determination of Geothermal Gradients in Oil Fields on Anticlinal Structure, H. C. George, University of Oklahoma, Norman, Okla.; E. H. Sellards, University of Texas, Austin, Tex.; Lester C. Uren, University of California, Berkeley, Calif.

25. Determination of the Thermal Conductivity of Gases and Its Application to the Precise Analysis of Hydrocarbons and Other Gases, L. H. Adams, United States Geological Survey, Washington, D. C.

26. The Displacement of Petroleum Oils From Oil Bearing Sands by Use of Selected Aqueous Solutions, Floyd E. Bartell, University of Michigan, Ann Arbor, Mich.

27. A Study of the Reactions of a Number of Selected Organic Sulphur Compounds, E. Emmet Reid, Johns Hopkins University, Baltimore, Md.

28. An Investigation of the Heat Capacities and Free Energies of Some Typical Hydrocarbon Compounds, George S. Parks, Stanford University, Palo Alto, Calif.

31. Study of the Equation of State of Certain Easily Liquefiable Hydrocarbons, Jean Timmermans, University of Brussels, Brussels, Belgium.

32. The Effect of Natural Gas Upon the Viscosity, Surface Tension, Adhesion, and General Extractability of Petroleum of Various Types, H. C. George, University of Oklahoma, Norman, Okla.

33-36. The Fundamentals of the Retention of Oil by Sand 1-IV, R. A. Millikan, California Institute of Technology, Pasadena, Calif.

37. Thermodynamic Properties of Petroleum Hydrocarbons, H. C. Dickinson, Bureau of Standards, Washington, D. C.

Papers Published

Several papers have been published as a result of work to date, the list being as follows:

Project 4. Oceanography and Oil Deposits, by Parker D. Trask. Transactions, American Geophysical Union, Bulletin National Research Council, No. 61 (1927), 235.

Project. Results of Distillation of Some Modern Sediments, by Parker D. Trask. American Association of Petroleum Geologists, 2 (1927), 1221.

Project 8. The Determination of Oxygen in Organic Compounds, by George Glockler and L. D. Roberts Journal American Chemical Society, 50 (1928), 828.

Project 16. The Action of Sodium-Potassium Alloy on Petroleum, by J. B. Conant and A. H. Blatt. Journal American Chemical Society, 50 (1928), 542.

Project 16. The Action of Sodium-Potassium Alloy on Certain Hydrocarbons, by J. B. Conant and A. H. Blatt. Journal American Chemical Society, 50 (1928), 551.

Project 20. The Estimation of Nitrogen in Petroleum and Bitumens, by E. J. Poth, W. D. Armstrong, C C. Cogburn and J. R. Bailey. Industrial & Engineering Chemistry, 20 (1928), 83.

Project 28. Sulphur Compounds in Mineral Oils, by P. Borgstrom and E. Emmet Reid. The Oil and Gas Journal, June 16, 1927.

Others have been submitted to appropriate journals and will be forthcoming in due time.

While it is, of course, too early to discuss the value of this fundamental research program on the basis of facts or principles that have been discovered, there is one indirect result worthy of comment. It is the growing tendency on the part of graduate students in schools where American Petroleum Institute fellowships have been established to choose problems for research which concern, or are related to, petroleum. There was, before the establishment of these fellowships, but relatively little research on petroleum in American universities, as compared with that on many other natural products or by-products, and it is not too much to expect that, as a result of the impetus given this sort of research by the establishment of A P.I. fellowships, it may in the not too far distant future be as popular to investigate the chemistry of petroleum, for example, as it has been for many years to study the chemistry of coal-tar. Who can foresee the importance of such a development as a source of fundamental information of value to the industry, entirely apart from the actual results to be obtained from the fellowships themselves?

SHREVEPORT MARKET

SHREVEPORT, La., Apr. 16.—A covering movement in anticipation of further advances in gasoline was in evidence during the week in this territory, an estimate of 500 cars being placed on the movement for this purpose. There was no change in prices, though the market continued stronger, except in fuel oil which weakened considerably.

Shreveport refiners are quoting United States Navy motor fuel at 7¼ cents, straw gas oil 2⅞ to 3 cents and fuel oil from 85 to 90 cents. Very few of them have any kerosene and is quoted at 5½ cents. El Dorado plants are quoting 7 to 7¼ cents U. S. Motor. No kerosene, straw gas oil at 2¾ cents and fuel oil at 80 to 85 cents.

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*Before semiannual meeting of the National Petroleum Association, Cambridge Springs, Pa., April 19, 1928.

[1]The Oil and Gas Journal, February 16, 1928, page 122.

[2]The Oil and Gas Journal, February 16, 1928, page 122.

GEOLOGISTS VISIT FLORENCE FIELD, SECOND OLDEST OIL DISCOVERY

By Tolbert R. Ingram

DENVER, Colo., Apr. 14.—A number of geologists on their way to the annual meeting of the American Association of Petroleum Geologists at Los Angeles in March stopped over at Florence and Canon City, Colo., to inspect the two oil pools in the environments of the two towns. They were the guests of the local Chambers of Commerce, the oil companies and the Rocky Mountain Chapter of the Association.

The Florence Field, which now embraces what has become known as the Canon City Pool, afforded the geologists an interesting outing. The district comprises Colorado's oldest and youngest fields. Florence, furthermore, has the distinction of being the second oldest oil discovery in the United States. Its unique distinction is not confined, however, to that honor. It has produced to date 11,875,423 bbls. of oil, all of which came from shale in a deep basin and every barrel of which was pumped to the surface. It has never had a flowing well and never produced a barrel of oil from a sand horizon. One well in a period of more than 30 years produced 622,000 bbls. of oil. In these respects, as well as in others, it occupies a position entirely distinct from most of the oil fields of the country.

Florence is one of the older towns of the state, incorporated in 1887. It is on the Denver & Rio Grande Western and Atchison, Topeka & Santa Fe Railroads, 30 miles north and west of Pueblo, and 160 miles from Denver by rail. Its altitude above sea level is 5,187 feet and its estimated population is 3,200. Canon City is 6 miles northwest of Florence, on the same railroads, has an altitude of 5,333 feet and an estimated population of 5,800. It is the county seat for Fremont County. It is near the eastern entrance to the Royal Gorge of the Arkansas River.

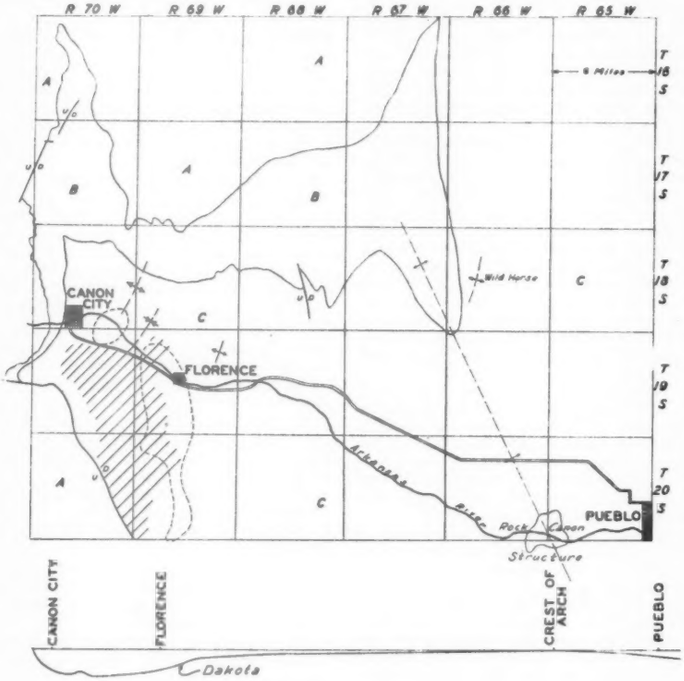
Story of Discovery

When oil was first discovered in the Florence district, the industry was in its infancy and no records were maintained then as they are today. Therefore, its early history is not as complete as might be desired, but a few years ago Charles W. Whitaker, of the Continental Oil Co., made an exhaustive study of such records as were available, and searched the files of local newspapers published at the time, and compiled what is believed to be a true story of the discovery. Shortly after Col E. L. Drake brought in the first well drilled for the explicit purpose of producing oil, A. M. Cassedy completed a well on Oil Creek, 6 miles north of Canon City in what was then Colorado Territory. This was in 1862. How Cassedy ever conceived the idea of coming more than half way across the continent to explore for the newest commodity known to man is not set down in history. This well was near an oil spring said to have been known to the Government through the Indians as far back as 1843. On January 8, 1863, Cassedy's "oil well" was reported to be down 23 feet. A month later it was drilled another foot and its total production was reported to be 1 bbl. per day from two horizons.

James Murphy, who also hailed from Pennsylvania, followed Cassedy to the west and brought with him a small refinery for the recovery of "coal oil" as kerosene was then known. This plant was set up near the oil well and put into operation. Coal oil then retailed at anywhere from $2 to $5 per gallon, but the gasoline, now the most valued product of petroleum, either was burned or dumped into nearby streams. The coal oil was marketed at Pueblo and other towns as far south as Santa Fe. This was in the days of the bull train and many days before the advent of the railroad or the tank car.

A sample of the coal oil was sent to the then editor of the Rocky Mountain News, and in his paper he commented on it as follows: "It burns with a beautiful clear red flame and we inaugurate its use in Denver in writing this notice by its light. The well yields about a barrel a day. They are still sinking deeper and have already tapped two veins at the depth of 22 feet and 24 feet. They will soon be able to supply the demand of the country."

Encouraged by this occurrence of oil in the foothills, Mr. Cassedy induced Isaac Canfield to help drill a deep well out in the valley. A point about 12 miles southeast of the oil spring near the present town of Coal Creek was selected. In 1876 oil was struck at a depth of 1,187 feet. In the next 12 years about 20 other wells were sunk by D. G. Peabody, A. M. Cassedy, James A. McCandless, J. Wallace and others, who organized companies known as the Arkansas Valley Oil & Land Co., the Land Investment Coal & Iron Co., the Colorado Oil Co., and the Canon City Oil Co. These companies obtained many successful wells and started the production of oil on a commercial scale. Other companies subsequently were formed and for a time things went rather hard with them. This finally led to several consolidations out of which grew the United Oil Co. In later years the United was taken over by what is now the Continental Oil Co. One of the companies not going into the consolidation was the Rocky Mountain Oil Co., which built a refinery 6 miles north of Pueblo, at Overton, and constructed a 35-mile pipe line from its producing wells to the plant. The plant was operated for a few years, but was unable to compete with the larger companies marketing petroleum products in the Rocky Mountain region, and finally was closed down. In 1902, it sold its producing properties to the United.



FLORENCE-CANON CITY DISTRICT
FREMONT CO.
COLORADO

The Florence Field continued to grow until its production peak was reached in 1904 when the output was 494,716 bbls., or a daily average of 1,355 bbls. The decline setting in the following year continued gradually until 1923 when it was producing an average of only 170 bbls. a day. In that year a discovery was made several miles to the south of the producing field in what is now known as the South Extension. In 1924, the Continental Oil Co. drilled two wells in Section 9-20s-69, which averaged 70 bbls. per day for the first nine months and still are producing.

Canon City Pool

About his time, 1924, a small local company called the Gate City Oil Co. started a well on the Steinmier farm in the NW Section 35-18-70, to the northwest of Florence and nearer to Canon City. The company had little money and drilled only a few hundred feet. Henry M. Fox, a contractor, took over the well and in 1926 encountered oil at 1,095 feet. It produced about 5 bbls per day. This was the beginning of the West Extension, or the Canon City Pool as it is sometimes known. The following year the Continental Oil Co. drilled in that area and definitely proved the new pool. The Continental was anxious to obtain the oil for its refinery at Florence and gave substantial aid to small independent companies, lending them equipment and supplies, and even undertaking the drilling of the wells for them on contract.

The oil from the Canon City Field is moved to the refinery at Florence in tank cars and is piped directly to the plant from the Florence Field and the South Extension. This refinery has skimming, cracking and lubricating oils units and a charging capacity of 2,500 bbls. per day. The cracking unit is equipped

STATISTICS ON FLORENCE AND CANON CITY FIELDS JANUARY 1, 1928

	Florence Field	Canon City Field
Past total production of field, barrels	11,875,423	149,951
Productive area of field, square miles	12-20	2
Present number producing wells	58	21 (Feb. 1, 1928)
Present daily production for field	590 (Feb.)	583 (Feb.)
Minimum daily well production	½ bbl.	
Life of wells, years	1-33	
Total number of wells drilled	1,007 approx.	45 approx.
Maximum production of abandoned well	622,000	
Minimum production of abandoned well	400	
Maximum production of any one well	622,000	
Ratio—Producers to dry holes	1 to 2.5	
Maximum depth of producing well	3,600	2,154
Minimum depth of producing well	1,100	910
Gravity of oil	20°-30° Be.	30°-32° Be.
Gasoline content	7%-(Distillation)	8%
Open hole frequently drilled, feet	1,500	
Total well cost, cable tools exclusively	$6,000 to $15,000	Contract $10,000. 1,600 ft. on pump
Mud and paraffine cleaning frequency, months	12	
Field price of crude	Mid-Continent plus slight premium	
Total 1925 field production	99,670	
Total 1926 field production	148,540	
Total 1927 field production	293,844 (includes Canon City Field)	
Deepest well drilled	4,500	3,560
Carbon ratio in bituminous coals (Cretaceous)	57%	
Distance to coal mines	½ to 3 miles	½ to 2 miles
Distance coal beds are above oil horizons	2,200-3,400	Probably same
Vertical stratigraphic producing range	500 ft.	
Stratigraphic interval productive zone above Dakota sandstone	1,900-2,400	
Stratigraphic interval productive zone above Niobrara shale	1,000-1,500	
Average per well per day for February, 1928	10.42	27.77
Production is less than 3 bbls. per foot of hole drilled.		

TABLE OF GEOLOGIC FORMATIONS, CANON CITY EMBAYMENT, FREMONT COUNTY, COLORADO

Age	Formation	Character	Maximum thickness
Cretaceous	Vermejo	Sandstone, shale, coal	2,000
	Trinidad	Massive sandstone	200
	Pierre	Blue-gray clay shale	3,700
	Niobrara		
	Apishapa	Platy gray white limy shales	550
	Timpas	Blocky buff limestone	200
	Benton		
	Carlile	Shale, sandstone at top	200
	Greenhorn	Slabby fossiliferous limestone	50
	Graneros	Dark shales	200
Cretaceous and Comanchean	Dakota		
	Dakota	Massive brownish white sandstone	200
	Purgatoire	Massive light sandstone	
Comanchean or Jurassic	Morrison	Maroon clays, limestone and sandstone	200
Permo-Triassic	Lykins (Chugwater)	Red sandy shales and gypsum	100
Pennsylvanian	Lyons (Tensleep)	Massive pink sandstone	200
	Fountain	Red sandstone, conglomerate	1,200
Mississippian	Millsap	Gray purplish limestone	200
Ordovician	Fremont	Gray-pink dolomite	100
	Harding	Gray-pink sandstone	100
	Manitou	Reddish dolomite	270
Cambrian		Sandy cherty beds	100
Pre-Cambrian		Igneus-metamorphic rocks	

with Burton stills with a capacity of 1,400 bbls.

The Continental company was the only major operator in the district until 1928 when the Texas Production Co. acquired holdings in the West Extension, and is now conducting an aggressive drilling campaign. Operations in the West Extension more nearly resemble town lot drilling than in any other Colorado Field. Between Florence and Canon City is a fruit-raising district noted for its products. It is mostly divided up into small tracts ranging from 3 to 10 acres.

Geology of Area

Paul B. Whitney, president of the Rocky Mountain Association of Petroleum Geologists, with the aid of officials of the oil companies and others, compiled data on the two fields which was incorporated into pamphlet issued for the benefit of the visiting geologists on their way to Los Angeles. From this pamphlet is taken the following information concerning the area:

Regional Structure: These fields which lie in the Canon City Embayment are practically in a structural basin. West of Pueblo the generally north-south foothills monocline bends westward forming this basin. The eastern margin of the basin is formed by the Wild Horse-Rock Canon Arch, a southward plunging anticlinal fold originating in the Pike's Peak vicinity and crossing the Arkansas River 6 miles west of Pueblo. The western margin is marked by the sharply upturned strata immediately west of Canon City.

Nature of Oil Occurrence: The oil occurs at variable depths from 910 to 3,600 feet in the Pierre shales, presumably in the fractures and fissures. Oil is not found in sandstones—in fact there are no sandstones of consequence in the column until the Dakota group is reached. The Dakota contains water.

Reason for Localization of Oil: Locally sharp changes in dip cause wrinkling and faulting creating openings in which the oil has accumulated. The Florence Field lies west of a narrow zone of steep westerly dipping beds. The Canon City Field lies south of and on an anticlinal nosing.

Trap for Source Material: Existence of upper Cambrian, Ordovician and Mississippian rocks in the Canon and Manitou Embayments and their absence elsewhere along the mountain front indicates local shore-line depression throughout much of Paleozoic time. It seems probable, although not proven, that this locality has been one of depression since earliest Paleozoic time in which case conditions were favorable for the accumulation of source material.

Gas Conditions: Gas wells are rare; gas, however, accompanies the oil but amount of gas is relatively low. Water is never encountered.

Well Operation: There are no flowing wells. All wells are pumped by electricity or steam.

Other Prospects: At several other localities in Colorado geologic conditions similar to those at Florence and Canon City exist. They have not been tested and offer favorable possibilities for new fields.

Test Wells Drilled

Test wells drilled on structures shown on the accompanying map include the following:

1. Structure along D.&R.G.W. Railroad 6 miles west of Pueblo is the Rock Canon structure.

Overland well, Section 36-20-66:
Drilled during 1920.
Total depth: 3,845 feet.
Surface beds: Dakota formation.
Tested through Millsap limestone.
Results: Dry.
Granite reported 3,880-3,945 feet.
This structure and ones to north and south mark east edge of Florence Basin.

2. Structure immediately south of Rock Canon structure is Columbia Heights structure.

Drilled by Union Oil of California, Section 30-21-65:
Drilled during 1924.
Total depth: 1,102 feet.
Surface rocks: Timpas.
Tested into Jurassic.
Results: Show of oil in Dakota 404-679 feet; Dakota group—water in top of Jurassic.
Dakota formation higher in structure than at point of outcrop along Arkansas River.

3. Structure to north of Rock Canon structure is Wild Horse structure.

Drilled by Columbine Oil Co., Section 34-18-66:
Drilled during 1920.
Tota ldepth: 3,265 feet.
Surface rocks: Benton (Cretaceous).
Top Dakota: 106 feet.
Water: 3,186 feet—probably below Millsap.

4. Portland and Concrete, Colorado.

Beds on surface are Timpas limestone and Apishapa shales. Members of Niobrara group.

5. Small structure 3 miles east of Florence and north of Arkansas River, Brush Hollow structure.

Drilled by Mutual Oil Co., Section 1-19-69:
Drilled: 1925.
Total depth: 1,875 feet.
Surface rocks: Niobrara-Timpas.
Tested: Dakota and Morrison sands.
Results: Water in all standstone members.

SOUTHWEST CONSUMERS OPPOSE PIPE RATES

At a meeting of the Southwestern Pipe Consumers' Committee held at San Antonio, Tex., plans were laid for opposing the increased rates on wrought iron and steel and cast iron pipe and fittings from manufacturing points to the Southwest, due to become effective on July 8, 1928, under a recent decision of the Interstate Commerce Commission in the Consolidated Southwestern Cases. The Southwestern Pipe Consumers' Committee is composed of about 250 members, representing municipalities, chambers of commerce, oil, gas and pipe line companies in Kansas, Oklahoma, Texas, Louisiana and Arkansas.

The first decision of the Interstate Commerce Commission in the Consolidated Southwestern Cases was made on April 5, 1927, and prescribed a scale of rates to apply from defined territories to and throughout southwestern territory on classes and various commodities. The basis prescribed for wrought iron and steel and cast iron pipe and fittings resulted in material increases in rates on these commodities to practically all points in Oklahoma, Texas, Arkansas and Louisiana. The Southwestern Pipe Consumers' Committee was then formed and petitioned the commission to reopen the matter of rates on these commodities for further hearing and consideration. At the same time, similar petitions were filed by the manufacturers, and, in its latest decision of March 6, 1928, the commission postponed the effective date and reopened for further hearing rates on cast iron pipe and fittings. The matter of rates on wrought iron and steel pipe and fittings was also reopened but the effective date was not postponed. This permits the increased rates on wrought iron and steel pipe and fittings to become effective July 8, 1928, and it being doubtful as to whether the rehearing would be completed before that time, the Southwestern Pipe Consumers' Committee filed another petition with the commission on April 3 requesting indefinite postponement of the effective date as to wrought pipe and fittings. Pending result of the petition, preparations are being made to vigorously oppose the increased rates at the commission's hearing.

The volume of tonnage of wrought iron or steel and cast iron pipe and fittings to the Southwest is one of the largest handled by the railroads in this territory, due to the rapid development of municipalities, extensive public improvements, and the enormous amounts of such materials used by the petroleum industry. It was pointed out at the San Antonio meeting that the increases in rates will add exorbitant amounts to the cost of municipal and public improvements, thereby placing an added burden on the public and the additional costs to the petroleum industry will be inestimably large. The increases prescribed are in varying amounts dependent upon the shipping point and destinations involved. A few small decreases are authorized in some instances, but in general the increases are much larger and affect points to which there is and will be a greater volume of movement. From the mills in the Chicago district to the following representative points the rates on wrought iron pipe and fittings have been increased as follows: To Tulsa, 6 cents; to Dallas and Fort Worth, Tex., 11 cents, and to San Antonio 20 cents per hundredweight. From the mills in the Pittsburgh district the rate to Tulsa has been decreased 3 cents, but to Dallas and Fort Worth has been increased 6 cents and San Antonio 15 cents per hundredweight. From the cast iron pipe mills in the Birmingham district the rates will be increased to Tulsa $2.40 per ton; to Dallas and Fort Worth $2, and to San Antonio $4.20 per ton.

All other points in surrounding territory are affected similarly. The receivers of these products in southern Oklahoma and Texas probably will bear the greatest burden of the increased rates, but there are also general increases through southwestern territory, which includes southwest Missouri, Kansas, Oklahoma, Texas, Arkansas and that part of Louisiana west of the Mississippi River.

C. H. Campbell, traffic manager, Lone Star Gas Co., Dallas, Tex., is chairman of the Southwestern Pipe Consumers' Committee, and was also selected at the San Antonio meeting as chairman of the finance and steering subcommittees, and C. C. Krueger, president, San Antonio Machine & Supply Co., San Antonio, Tex., and J. L. Burke, traffic manager, Sinclair Pipe Line Co., Tulsa, were appointed to the same committee, which is to have charge of selecting counsel, determining the methods and policies to be pursued, devising means for financing the contesting of the increased rates, and outlining and securing, in conjunction with counsel selected, the traffic managers and representatives of members, evidence and data to be submitted to the commission.

Traffic managers and representatives of the eastern and southern manufacturers, who are conducting a similar fight against the increased rates through their manufacturers' committee, attended the meeting at San Antonio, and gave their assurance of co-operation with the consumers' committee.

EASTERN OKLAHOMA IS TOPIC FOR GEOLOGISTS

Frank C. Greene, chief geologist of the Skelly Oil Co., was the principal speaker at a meeting of the Tulsa Geological Society held on Monday night. His subject was "Correlation of Well Logs in Eastern Oklahoma."

Mr. Greene had several sections of geological data, the main section starting near Tahlequah, Okla., and running to Township 4n-7e. The Wilcox formation was given scant attention in Mr. Greene's discussion, and he started with the Mississippi lime. Discussing this stratum he mentioned that it was of Boone age in the Ozark Mountains, while on the west edge of the Ozarks and to the south, it is termed the Mayes formation. It is difficult to determine where the one name starts and the other leaves off.

A shale above this formation is called the Fayetteville shale, and this with the Pitkin lime are now being correlated with the Pitkin and Fayetteville formations as they are known in Arkansas. The question as to whether they are of Mississippian or Pennsylvanian age was mentioned by Mr. Greene. The Fayetteville shale can be traced south, and evidently is the shale below the Cromwell sand. The lime is sometimes called the Pitkin-Morrow, with Pitkin at the base. This lime runs into the Lyons lime which is found in Township 11-11, Okfuskee County, and apparently pinches out in that township, as it does not appear regularly to the west of this region. It was found in patches in parts of the Cromwell Pool of Okfuskee County; and is also present in the Allen Pool. Mr. Greene stated that the majority of paleontologists have now agreed that this is the lime which has been called Wapanucka in the Allen Pool.

Resting on this lime in the north part of Mr. Greene's section is a sand believed to be the Dutcher. As the section goes south, the sand thickens, and has some lime in it. To the south this sand correlates with the Gilcrease sand. The formation at Allen which has been called Savanna should in Mr. Greene's opinion be called Gilcrease.

COLEMAN AND BROWN COUNTIES GET PLAY

(Continued from Page 38)

those traveling to West Texas and those traveling in that section of the country on business to adjoining counties.

The southern and east half of Callahan County were the most active areas in that county last year and are reported to be showing increased activity. Last year 142 wells were drilled to depths of between 1,400 and 1,600 feet. Of the total number of wells drilled 91 were dry holes.

While trunk lines built into those counties several years ago when production was at its peak amply care for production line, pipe line work has been extensive in some of the counties during the past months. This work is a result of the building of arteries out of West Texas.

Three main lines run into that district and intersect trunk arteries going to the Gulf Coast. Two lines from the Panhandle also terminate in the district and connect with trunk systems running south.

Many are of the opinion that development in this district will continue to show a steady increase for many months to come. The low cost of operation and high gravity crude is a combination that is expected to hold a strong and lengthy appeal.

RECOMMEND FURTHER SEMINOLE CURTAILMENT

(Continued from Page 38)

vitation of the committee is printed below.

Plan Suggested

The plan adopted for handling the necessary drilling in the outside regions of the Greater Seminole area is given below:

The present shutdown agreement of the drilling of wells in what is called the outside areas of the Seminole terminates on May 1, therefore the committee and umpire have called this meeting for the purpose of determining whether you wish to continue the present order to June 1, or to permit the drilling of certain test wells around the shut-in wells. If you find it advisable to drill these test wells, the committee has the following recommendations to make:

In Township 8, Range 5, permit the following wells drill: The three offset wells to the Barnsdall Oil Co. well in Section 14-8-5, and the three offset wells to the Indian Territory Illuminating Oil Co. in Section 16-8-5, and the first series of key wells located as follows: Indian Territory Illuminating Oil Co., in SE of NE, Section 10-8-5.

In Section 23, 24, 25 and 26, Township 9, Range 5, permit the following well to drill: Gypsy Oil Co., SE of NE of SW, Section 24-9-5.

In Sections 5, 6, 7 and 8, Township 8, Range 6, permit the following wells to be drilled: Twin State, NW NE NE, 8; Roxana, NW NW SW, 7; and Marland, NE SE SW, 7.

In Sections 32, 33 and 34, Township 8, Range 6, and 3-4-5 in Township 7, Range 6, the following wells be permitted to drill: Permit the offset wells to Gypsy in SW cor. of SE, Section 33-8-6.

Permit to drill the offset wells to the Mid-Continent Petroleum Corp., in NW of NE, of Section 5-7-7.

Upon completion of the offset wells test wells are to be pinched in to 50 bbls. per well per day and to remain pinched to 50 bbls. until the first well comes in that is started after the area is opened up for general drilling.

The Barnsdall well in Section 14-8-5, to produce to full capacity until completion of first offset well.

CALIFORNIA MARKETS SHOW MORE STRENGTH

LOS ANGELES, Calif., Apr. 14.—California petroleum markets continue to show improvement. This is especially true of the local gasoline market which at present is strong. The large marketers from all appearances have gone back definitely on the 4-cent margin to service stations. To date, the small marketers, so-cal'ed independents, are still offering to deliver gasoline 6 cents under the posted service station price. There are very good indications, however, that the independents wi'l not long offer such a margin but will soon allow a 5-cent differential only. Only a very small percentage of service stations is still displaying six for a dollar signs and most of these are expected to come down in a few days.

The tank car gasoline market is very strong. There seems to be an actual shortage among the independent refiners and certain marketers are finding d'fficulty in supplying their trade. Prices have stiffened material'y and U. S. Motor for local consumption is now bringing from 9½-10 cents. Indications are that with warmer weather this market will continue firm.

California gasoline for export is becoming scarce. A number of the companies are very reticent even to quote on cargoes. The lowest quotation during the past week was 6½ cents and offers ranged to a cent higher. Apparently the California companies expect further improvement in prices so are holding their goods.

Natural gasoline has improved fractionally and is bringing from 8½ to 9 cents in most cases. The demand has been good and very few distress sales have been necessary. This market, however, is not as firm as U. S. Motor gasoline.

Fuel oil prices are firmer. Here again demand has improved and this together with the recent action of producing companies in shutting in heavier crude has resulted in a much steadier tone.

A

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Operators usually can arrange a Tret-O-litE plant, using equipment already on the lease. No heavy initial investment —no expensive equipment to stand idle when need for large treating capacity has passed.

The Tret-O-litE method is the fast, economical and THOROUGH method of recovering oil from emulsions.

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Tret-O-litE

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ROCKY MOUNTAIN MEETING ADOPTS RESOLUTIONS ON CONSERVATION

CASPER, Wyo., Apr. 14.—The Rocky Mountain District American Petroleum Institute Technical Division of Development and Production Engineering held a meeting in Casper, April 12. The following officers were elected: Sam Crinsfelder, petroleum engineer, Union Oil Co. of California, first vice chairman; Donald Hageman, superintendent, Queen City Oil Co., Shelby, Mont., second vice chairman; Prof. P. F. Shannon, Colorado School of Mines, Golden, Colo., secretary.

F. E. Wood, Midwest Refining Co., is chairman of the Rocky Mountain division, under appointment of the national chairman of the technical association.

The program committee is headed by the secretary, and the membership committee by the first vice chairman. One hundred of the prominent operators in the Rocky Mountain region were present.

A paper on "The Need for Investigation of Corrosion in the Rocky Mountain Region," was presented by H. W. Young, research engineer, Midwest Refining Co.

Findings of the technical subcommittee to American Petroleum Institute Gas Conservation Committee with direct application to Rocky Mountain problems were reported by F. E. Wood, petroleum engineer, Midwest Refining Co., followed by discussion of unit operation as now practiced in the Rocky Mountain region and the need for further unit operation. The report of the Committee of Nine and proposed bill to permit unit operation made up by that committee was presented by A. Baker, land commissioner of the Ohio Oil Co.

Resolutions were presented and adopted to be sent to the governors of Colorado, Wyoming and New Mexico. The president of the Montana chapter of the Rocky Mountain Oil and Gas Association will present this resolution for adoption in Montana and will forward it to the governor of Montana and to the railroad commissioners of Montana.

Plans were discussed for a meeting to be held in September.

The resolutions as adopted follow:

Whereas, the Rocky Mountain District American Petroleum Institute Technical Division of Development and Production Engineering favors the proper conservation of oil and gas and the proper regulation of operations in connection with the development and production of oil and gas, and

Whereas, it is the desire of this organization to fully co-operate with the Federal Oil Conservation Board and the Committee of Nine appointed by that Board, the national organization of the American Petroleum Institute and the committee of that Institute on conservation of oil and gas, the Department of the Interior and the United States Geological Survey, and the oil-producing states in the Rocky Mountain region, in the proper conservation of oil and gas and in adopting and observing proper regulations governing operations in connection with the development and production of oil and gas in that region, and

Whereas, the major portion of the lands in the Rocky Mountain region producing or believed to be capable of producing oil and gas are owned by the United States Government, and the oil and gas from these lands are conserved and the operations carried on under regulations of the Department of the Interior and the United States Geological Survey, and

Whereas, in 1921, the Legislature of the State of Wyoming enacted laws providing for the conservation of oil and gas and for the regulation of operations for the development and production of oil and gas on State and privately owned lands in Wyoming, with legislation in effect adopted the operating rules and regulations adopted and then in force by the United States and governing the conservation of oil and gas and operations on public lands belonging to the United States in the State of Wyoming, and

Whereas, this organization believes that the operating rules and regulations adopted and followed by the United States through its Department of the Interior and Geological Survey in connection with the conservation of oil and gas and the regulation of operations on lands belonging to the United States and the operating rules and regulations adopted and followed by the State under the Act of the Legislature of 1921 for the conservation of oil and gas and regulation of operations on State and privately owned lands in Wyoming, have worked out successfully and to the best interests of the United States and the State of Wyoming, the public generally, and the individuals and corporations operating these lands for oil and gas; and

Whereas, the Committee of Nine appointed by the Federal Oil Conservation Board has conducted an investigation into the legislative needs of the petroleum industry and submitted a proposed bill to be introduced in Congress legalizing agreements for the co-operative development and operation of oil and gas pools and agreements between producers for the curtailment of drilling of oil wells and production of oil during periods of overproduction and such agreements to be filed with and approved by the Federal Oil Conservation Board and that upon favorable action by Congress the oil-producing states enact similar legislation, uniform as far as possible, and

Whereas, with respect to the conservation of gas the Committee of Nine is continuing its studies with the view to later recommending suitable legislation to Congress and the oil-producing states,

Now, Therefore, Be It Resolved by the Rocky Mountain District American Petroleum Institute Technical Division of Development and Production Engineering

1. That this organization pledges its best efforts to co-operate with the Federal Oil Conservation Board and the Committee of Nine appointed by that board, the national organization of the American Petroleum Institute and the committee of that Institute on conservation of oil and gas, the Department of the Interior and the United States Geological Survey, and the oil-producing sates in the Rocky Mountain region, in the proper conservation of oil and gas deposits and the regulation of operations for the development and production of oil and gas on government-owned, state-owned, and privately-owned lands in this region.

2. We recommend that the oil-producing states of the Rocky Mountain region take steps to adopt the operating regulations of the Department of the Interior and the United States Geological Survey in the production of oil and gas on privately-owned and state-owned lands, and that the appointment of state officials charged with the supervision of such operations be subject to civil service examination based on adequate qualifications and experience.

3. We approve the report of the Committee of Nine to the Federal Oil Conservation Board and the proposed bill permitting co-operative agreements.

4. We do not believe that further legislation with respect to conservation of gas in the State of Wyoming is necessary or advisable at this time.

NATURAL GASOLINE FEATURING MARKET

(Continued from Page 34)

cilities to favor higher refinery prices in proportion to retail prices. Refining has become such a complicated manufacturing procedure, involving many kinds of expensive equipment, that as the small refiner is eliminated and the cost of production becomes equalized, attention is turned toward the marketing end. Here competition among refiners must be met and also independent jobbers. Higher retail margins have been allowed in order to make the marketing branch pay out and this has been at the expense of the refineries. The trend in the future or at least at present is in the opposite direction.

The 58-60 U. S. Motor grade of gasoline witnessed the greatest increase in price over the week as attention was focused on that grade. The other grades showed strength but lagged in the trend. The weighted average prices for the sales reported by refiners on Monday, April 16, and those a week ago are shown below:

Grade—	Price Apr. 16	Price Apr. 9
58-60 437 endpoint	.06838	.06633
60-62 437 endpoint	.06890	.06756
60-62 400 endpoint	.07125	.07172
64-66 375 endpoint	.07062	.07250

Naphtha prices advanced, reflecting the better gasoline market and it was given more attention as blenders and marketers turned their attention toward cheaper motor fuels.

Kerosene and Distillates

Prices were advanced during the week with a continued rapid movement of the product. Some contend kerosene has shown a tendency to slow up in its trend upward, but on the other hand refiners are not wil'ing to quote on next month's deliveries. Distillates have done no more than hold their own in a very inactive market.

Natural Gasol'ne

All grades of natural gasoline took a sharp turn upward in price. There was a scarcity of material on the spot market even though large stocks have been accumulated over the past six months. Manufacturers are holding these stocks in anticipation of better prices and in some cases are buying up material to supply their present demand. There has been a very active movement of natural gasoline for export and there are several buyers in the market now who are anxious to effect contracts on material to be delivered over April. So far, however, they have been hesitant to pay the prices set by the manufacturers, and on the other hand the manufacturers are equally determined to keep their prices well above the present market. Some manufacturers state they wou'd not sell over April for less than 1 cent above the present market price on the respective grades.

Gas Oil and Fuel Oils

While some reported a freer offering of both gas oil and fuel oil, there was no general price concessions offered. There was some gas oil sold at 2½ cents but this did not represent the market. Likewise, fuel oil was a little easier to find in large quantities, and while there was no general price reduction it d'd not show the same firmness it did last week. The shipment of West Texas fuel into the Oklahoma marketing territory has cut down the demand for the latter material, and although most of the Oklahoma fuel has been contracted for over the month, refiners are in a less secure position regarding an outlet over April.

Lubricants and Wax

With the better outlook for refined oil prices in general, jobbers have stocked up on lubricants both in anticipation of higher prices and increased consumption. There have been no general price changes but much of the practice of offering concessions to larger buyers has been discontinued. Wax is marking time with prices firm. Resistance to the advancing prices is being felt but with a good demand from domestic users; still higher prices may be effected over the next two weeks.

UNDERGROUND TANKS SAFE IN CONFLAGRATION

The National Fire Protection Association has issued a pamphlet on the Fall River conflagration which resulted in a loss of over $6,000,000. The pamphlet is the result of a careful study of all phases of the fire. The following paragraphs have an immediate interest to the oil industry. "There is no evidence that gasoline, fuel oil or city gas contributed in any way to the severity of this fire. There was a gasoline filling station in the open space at the north of the Buffington Building, but the main supplies of gasoline were in underground tanks and the small amounts of gasoline and oil above ground burned quietly, not contributing in any way to the spread of the fire, according to observation of eyewitnesses. The large Mohican Hotel Building was heated by a fuel oil burning equipment, but the tanks underneath this building were found to be intact.

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Day and night over 2000 miles of "high tension lines" bring a dependable, constant supply of the most flexible POWER imaginable, that can be started or stopped in a second—to light derricks or plants for "double-shift" work—to run drilling rigs—to pump wells and pipe lines—TO DO EVERY OIL FIELD TASK.
38 COUNTIES IN WEST TEXAS are receiving uninterrupted electric service from the West Texas Utilities Company, through 100 "centers of distribution." One of these "centers" is conveniently near each proven West Texas field—and lines are constantly being extended as fields are developed.
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Of Interest to Sales Departments

I.C.C. Dismisses Rail Complaint of Western Refiners

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 12.—The Interstate Commerce Commission has found to be reasonable the rule of consolidated classification for petroleum products requiring the payment of freight charges on the computed weight of fuel oil, gas oil, lubricating oil and wax distillate loaded into the domes of tank cars in addition to charges based on the shell capacity of the car. The complaint of the Western Petroleum Refiners Association against the St. Louis & San Francisco Railway Co. have been dismissed.

The National Petroleum Association alleged by complaint in the case that the rule was unreasonable when applied to the commodities named. The Standard Oil Co. of New Jersey and the Standard Oil Co. of Indiana intervened in both cases in support of the present rule.

The Sinclair Refining Co. and The Texas Company intervened also but offered no testimony.

Freight charges on all of the petroleum products referred to, when loaded in tank cars, are computed upon an estimated weight of 6.6 pounds per gallon, except in western classification territory, where an estimated weight of 7.4 pounds per gallon is applied to shipments of fuel and gas oils. The report of the commission states: "The minimum is the computed weight of the full shell gallonage capacity of the car, and where the loading extends into the dome the computed weight of the gallonage in the dome must be added to the weight of the gallonage in the shell of the car.

"The volume of oil varies with its temperature, as it expands when heated and contracts when cooled, but its weight remains the same. The oils here considered expand approximately 1 per cent of their volume for each 20 degrees Fahrenheit that their temperature is raised.

"Complainants state that heavy oil is loaded into tank cars at high temperatures to facilitate loading, and that it is practically impossible to load it cold, due to the length of time required to load in this manner. If the car is loaded to shell capacity, the contraction of the oil after it has cooled leaves the car less than shell full, although the shipper has paid freight charges on the basis of the minimum of full shell gallonage, and if the oil is loaded so that it extends into the dome of the car, the gallonage in the dome must be paid for at the estimated weight per gallon, even though the contraction of the oil leaves the car shell full, or even with an outage of several inches in the shell.

"The average loading temperature of fuel oil is stated by complainants to be 140 degrees Fahrenheit, that for lubricating oil 120 degrees, and for gas oil 100 degrees. However, the average loading temperature of these oils on actual shipments shown in an exhibit of record was considerably lower, and this exhibit also shows that the oils are often loaded at the atmospheric temperature. In western classification territory tank cars are often loaded direct from the still, and the oil loaded by this method is naturally at a very high temperature. This practice is not followed in official territory, and since the only exhibit of record which shows the loading temperature of actual shipments covers shipments originating in western territory, it can be assumed that the average loading temperature for all fields is somewhat lower than that for the shipments shown in this exhibit."

Short Talks on Refinery Products

By W. T. Ziegenhain

HOW WAX IS MADE

In the two previous issues of The Oil and Gas Journal the processing of the mixture of crude wax and oil, called cracked wax distillate, was discussed, including the making of this cut from the crude oil during the initial distillation of the crude and then through the wax house where the wax and oil were separated.

As the paraffin wax collects on the canvas plates in the wax house it builds up a thin cake but droplets of oil are mechanically held in this cake, so that additional processing is necessary to completely free the wax of oil. This is most commonly done by a process known as "sweating." This simply involves slowly heating the wax in specially constructed pans to the temperature where the wax becomes plastic and allowing the oil to drop out.

These pans are set, one above the other, each approximately 20 feet long, 8 feet wide and from 6 to 10 inches deep. To provide a means of separating the oil and wax during the heating, a wire netting is hung, covering the entire bottom of the pan but held off of the floor of the pan about 2 inches. Before running the wax to these pans, cold water is pumped into them so the level of the water is just over this net work and then the molten wax is pumped in, filling the pans. The doors of the sweat house are kept open and cold water is circulated through small pipes under the pans so the wax soon solidifies and floats on the water. After it has formed a solid cake, the water is drained off from the bottom of the pan and the wax settles down onto the wire netting. Then the room is tightly closed and the heat gradually raised by use of steam coils. The wax becomes plastic and the temperature continues to be slowly raised over a period of several days and by the end of that time, all of the oil will have fallen out, leaving a very soft, spongelike cake of wax on the wire netting. Steam is run through the coils under the pan and wax is melted. It is then pumped to storage and then to large filters where all of the water is removed and the wax rendered colorless, or white, as it appears when fractured. Sometimes the wax is first treated in heated agitators with chemicals, just as is done in the case of manufacturing lubricating oils but this is not ordinarily done.

These filters are simply small steel tanks with cone-shaped bottoms. These are filled to within a short distance from the top with a filtering medium such as fuller's earth or some other clay, having adsorptive properties. The wax slowly percolates through this bed of earth as it is kept in the molten state and runs out of the bottom into storage tanks. From here it is pumped to molding machines where it is solidified and pressed into 50-pound slabs or is taken to a chipper. The method used is dependent upon the kind of container used in shipping the wax. If a burlap or paper sack is used, the wax is molded in slabs but if the wax is to be shipped in wooden barrels it goes to the chipper. This is simply a revolving drum, the inside of which is cooled with running water and the outside of the drum dips into a pan of the wax. A thin layer or film of the wax adhers to the drum as it revolves and then as it cools it forms a hard film. On the opposite side of the drum, this wax film is peeled off with a knife edge which rests against the drum. The film is fractured many times as it is peeled off giving the wax a snow white appearance. As the film is loosened from the drum it falls into wooden barrels which are filled, headed and weighed. The wax is usually called crude scale wax but is suitable without further processing for most commercial uses.

COMBINATION ENGINE

A combination oil-burning engine and internal combustion engine has been tested in England with favorable results. It differs materially from the ordinary construction and the principal is intended to better use the available heat in the fuel. Such an engine supplies the flexibility of operation characteristic of steam engines and also utilizes the principal of the internal combustion which is more efficient.

The new locomotive is double acting with internal combustion at one end of the cylinder and steam at the other end through which the piston rod works. The water in the jacket is in connection with the boiler, and the excess heat from products of combustion assists in the production of steam in the boiler. The boiler is primarily heated by oil burners and the steam generated is used for starting the engine.

CAPE TOWN GASOLINE STORAGE

The petroleum companies operating in Cape Town, South Africa, have been granted authority to erect a depot for the storage of gasoline in bulk, and tanks with a capacity of 50,000 tons are expected to be erected before the end of the year. Space for this purpose has been leased to each of five oil companies.

BRITISH OIL IMPORTS

Total petroleum imports into the United Kingdom during February came to 138,744,331 imperial gallons, a decline of about 8 per cent from those of the preceding period and of 9 per cent from those of the corresponding period of 1927. Gasoline imports, however, continued in excess of the 1927 shipments and fuel oil was also imported in larger amounts. Imports of crude from Persia showed some decline, but shipments from Curacao, Colombia and British East Indies brought the total nearly to the figure of the preceding four weeks, though still much below the corresponding 1927 figure.

NEW AVIATION DEPARTMENT

The Standard Oil Co. of New York is considering the establishment of an aviation department to study the problems of lubricating and the correct fuel for airplanes. When necessary, new products will be developed to best meet the needs and it is intended to make this a regular department. L. J. Maitland, one of the army aviators to fly from California to the Hawaiian Islands, has been suggested to head the new department.

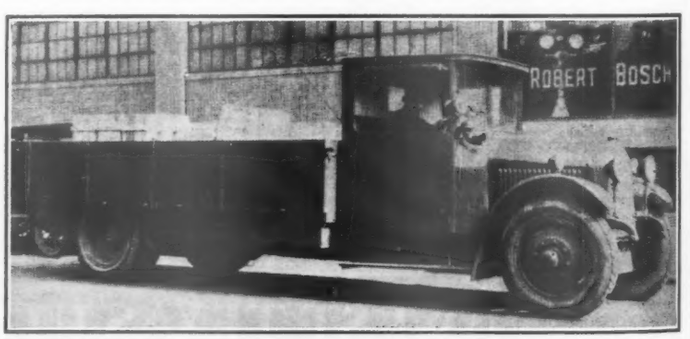
GERMAN BENZOL OUTPUT

Conditions improved considerably during February in the German market for automobile fuels and prices for benzol and benzine have stiffened somewhat. The demand for benzol, benzol mixtures, and other automobile fuels is excellent for the season, and may be expected to improve as the weather becomes better. Production of benzol is increasing slightly owing to the heavy demand for coke.

RANDOLPH SALES MANAGER

C. Fred Mercer, formerly of the Riverside Oil Co., and the Carson Petroleum Co., of Chicago, has been made sales manager for the Randolph Petroleum Co. of Tulsa.

LARGE TRUCK OPERATES WITH DIESEL OIL



Within the near future the oil industry may be called upon to dispense a new kind of fuel from its stations for use in trucks and buses. Tests just completed on a 3½-ton Diesel truck have shown very good results and a review of these tests in Oil Engine Power shows that 11.5 miles per gallon was averaged during a 1,205-mile test trip using ordinary Diesel engine fuel oil. The trip was planned to be made during adverse weather conditions and nearly half of the trip was made through a snow storm and the atmospheric temperatures were below freezing.

There was no excess dilution of the crankcase oil, no excessive deposit of carbon on the cylinders and there was no difficulty in starting the engine even after the truck was left in an unheated garage over night.

The adoption of Diesel engines for truck and bus transportation offers a greater promise of being adopted than for passenger car use, because of the greater weight and bulk of the Diesel engine and because it is well adapted to operating under a heavy load continuously. However, the fact that Diesel engines in general are heavier and more bulky than gasoline engines is no longer so pronounced and it would be difficult to recognize any material difference in the appearance of the Diesel truck as shown in the picture here and one using gasoline as fuel.

Final Quality Depends First, on the Crude

OVER 11,000 producing wells feed the pipe lines leading to Pure Oil's large, modern refineries. Some of this crude is rich in gasoline content; some is valuable for making high grade motor oil; while some is best suited as a base for industrial oils or greases. But, because Pure Oil controls this vast production, it has a sure supply from which its experts select the cream of the crudes for refining each product.

Every step in the producing, refining, and marketing of Pure Oil products is efficiently handled by Pure's own organization. That is why Pure Oil products are uniformly good . . . always delivered on the dot!

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Refractory Problem in Oil Refining

Advent of Tube Stills in Cracking and Topping Operation Has Necessitated Special Care in Design of Furnaces

By Gustav Egloff and L. A. Mekler*
Universal Oil Products Co., Research Laboratories, Chicago, Ill.

The use of high capacity tubular cracking and topping stills introduced a refractory problem to the refining industry. In the past when distillation and cracking were carried out in shell stills the heating operation, by necessity, was conducted at low rates. The shell stills and the refractories were kept at relatively low temperatures. The shut down, stream to stream, period was of sufficient time to allow the furnaces to cool off gradually and the refractories were not subjected to severe strains of rapid heating and cooling.

In the past few years the picture has changed considerably. The high-capacity tubular stills for both cracking and topping require a high rate of heat transfer per square foot of tube surface and hence, a high differential between the temperature of the tubes and the products of combustion in convection type stills, or the tubes and refractory radiating surfaces in radiant-type stills. The temperature of the furnace refractories became higher and higher, particularly in the radiant heat type of furnace where in some portions of the still the refractories are at "white heat" or over 2,000 degrees Fahrenheit.

In addition to the increase in furnace temperatures the present type of tube stills are allowed as short a time between stress periods as possible, so that aside from the higher temperatures to which the refractories are at present subjected, they also have to withstand rapid heating and cooling. It is this rapid heating and cooling which constitutes the greatest problem in the choice of refractory materials for refinery operations. The nonspalling quality of the refractory, that is, the ability to withstand repeated heating and cooling without disintegration and breaking off, or spalling of the surfaces exposed to the furnace temperatures, is probably the most important characteristic of a refractory to be considered. Of the many materials used in the preparation of refractories for high temperature work and rapid heating and cooling, the most suitable are those which after firing give a comparatively porous structure and have the minimum of so-called secondary shrinkage, a shrinkage induced by repeated heating and cooling, even though the heating is not carried out to a temperature at which a physical or chemical transformation of the components occurs.

A large percentage of precalcined material or grog, is particularly desirable in a refractory to make it nonspalling because precalcining takes up most of the shrinkage of the clay when subjected to high temperature conditions. Grog used in the refractory is in much larger particles than the raw clays. A body rich in grog will therefore give a finished refractory with a larger percentage of voids which would help to take up the stresses set up in the refractory due to repeated heating and cooling and would therefore reduce its spalling tendency.

High Grog Refractories

There are a number of high grog refractories on the market, and even though they are considerably more expensive than the regular type of first quality refractories, they will prove more economic in the long run due to their nonspalling properties and the fact that under repeated heating and cooling they will outlast an ordinary refractory in a ratio of approximately three to one.

The refractories for refinery use do not necessarily have to have a high fusion point. The temperature at which first quality refractories will fuse is so high that the still itself will either choke up or the tubes will burn out before such a condition is reached. Therefore, the fact that one refractory fuses at 3,300 degrees Fahrenheit, while another at 2,900 degrees Fahrenheit does not necessarily mean that the first refractory is more suitable for refinery operation. Neither refractory will ever reach the fusion temperature in a properly operated still, unless accidentally. A much more important property of a refractory is its ability to maintain its shape and rigidity above the operating temperatures of the tube still, approximately 2,000 degrees Fahrenheit, or so.

Some types of refractories soften gradually and begin to deform permanently at comparatively low temperatures of 1,500 to 1,800 degrees Fahrenheit; other types remain as rigid as when at atmospheric temperature at much higher temperatures and they start to soften rather suddenly. The second type of refractory is much more preferable for refining operations than the first. Many manufacturers at present, among other specifications, give the hot load test of their materials and this figure is much more important than the fusion temperature and the tensile strength of the refractory when cold.

Construction Details

A refractory for refinery use should run true to size and have as sharply defined edges as possible. In tube still construction the refractory has to tie up with pipe work and unless it is true to size considerable "cutting" and fitting will be required to meet pipe connections of the balance of the refinery apparatus. Brick work in general, and for refining operation in particular, is best laid with as little fire clay or other cements as possible. A close brick to brick joint with the bricks just surfaced in a thin clay "batter" is ideal. This can only be obtained when the surfaces of the refractory are practically true and where the dimensions in all three directions vary as little as possible. From this point of view a re-pressed refractory, that is, one pressed a second time after drying, or a dry pressed refractory, that is, one made out of practically dry material under high pressure, is preferable to other types.

Determination of Trueness

The trueness of a refractory is determined not only by the method of pressing and the exact size before firing but by the thermal treatment during firing to which the refractory is subjected in the kiln. From this point of view a refractory produced in a tunnel kiln is much more desirable to one made in a periodic kiln. In a properly controlled tunnel kiln each individual piece usually has the same thermal treatment because the material travels at uniform speed through different heating zones carefully maintained at the desired temperatures. This results in a uniform temperature and time factor to which each piece is subjected to while being fired in the kiln. In periodic kilns there is quite a difference in both temperature and time to which different pieces are subjected, not only from kiln to kiln but even in the same kiln. In the usual down draft kiln the pieces near the fire boxes will be much harder fired than those in the center.

There is also usually a difference in the degree of firing between pieces in the top of the kiln and near the bottom. A difference in thermal treatment means naturally a difference in shrinkage, porosity, hardness and the internal strains of the refractory. At some plants this difference is so great that first and second quality refractories are fired in the same kiln.

A still laid up with a refractory made in a tunnel kiln will stand up better and have a smaller tendency to crack at the joints or crawl out of line than a still laid with a refractory made in a periodic kiln.

In a properly designed tube still there is apparently no real need for superrefractories such as silicon carbide, aluminum oxide, mellite and some of the precalcined refractories prepared primarily to have a high fusion point. As mentioned above, their superior refractory qualities will serve no special purpose. Some stills use carborundum in the combustion chambers of the tunnel type but there the material is used not for its high refractory quality, but for its conductivity in order to obtain a maximum amount of shielded radiant energy in the still.

Insulating Materials

In recent years a number of manufacturers have been experimenting with refractory insulating materials. These materials combine within themselves the properties of a refractory and insulating material in so far as they withstand high temperatures without deterioration and also have a much smaller coefficient of heat conductivity than an ordinary fire clay refractory. A few such materials are already on the market and a number are undergoing service tests under actual working conditions at operating temperatures up to 2,500 degrees Fahrenheit. Such materials have a number of advantages over the ordinary fire clay refractory. They are usually lighter in weight, approximately half the weight of an average fire clay refractory.

Their heat conductivity is approximately one-quarter to one-third that of fire clay refractories and with some brands approaches the conductivity of calcined insulating materials made to withstand temperatures of 1,200 to 1,600 degrees Fahrenheit. On an average a 9-inch wall of this material is equivalent in its insulating and refractory properties to 9 inches of fire brick, 4½ inches of standard insulating material and 4 inches of red brick, and weighs approximately 50 pounds per square foot as against more than 200 pounds of the composite wall.

Insulating refractories are by necessity porous and while this is an advantage from the point of view of spalling, it makes them subject to disintegration by the action of combustion gases. To avoid infiltration of the products of combustion into the body of insulating refractories they are usually covered with a wash of refractory cement which vitrifies under the operating temperature of the furnace. The outside surface of the material is usually covered with mineral wall board or weather proofing to protect it from the elements.

Still brick work laid up with a refractory insulating material being lighter in weight than the conventional brick work would, has a smaller heat storage capacity than the average still brick work. This means not only a saving in the fuel required to bring the refractories to the operating temperature but a considerable time saving in the heating up and cooling of the tube still. A wall laid up of only insulating refractory would be structurally stronger than one com-

(Continued on Page 175)

*Address given before American Institute of Refractories Meeting, St. Louis, Mo.

Program, Petroleum Division, American Chemical Society, St. Louis, Mo., April 17-18

J. BENNETT HILL, Chairman
CARL L. JOHNSON, Secretary

West Palm Room

Tuesday, April 17, 9:30 a. m.

1. S. H. Diggs and S. F. Campbell. Chemistry of Lead "Soaps" Made from Litharge and Natural Fat.
2. W. F. Faragher, J. C. Morrell and I. M. Levine. Determination of Olefins and Aromatic Hydrocarbons.
3. E. C. Alderman. An Analytical Method for the Separation of Bright Stocks and Neutral Oil Mixtures.
4. Stuart M. Rogers and Linden R. Adkins. A Micro-Saybolt Type Viscometer.
5. Hal B. Coats and George G. Brown, Jr. The Vapor Pressure of Hydrocarbons.
6. O. C. Bridgeman. Dew Points of Air-Gasoline Mixtures from Distillation Curves.

Tuesday, 2:00 p. m.

Joint session with the Industrial Division.

ROUND-TABLE DISCUSSION: LUBRICATION
R. E. WILSON, Leader

Wednesday, April 18, 9:30 a. m.

7. Discussion of A.P.I. Projects, led by members of the Central Petroleum Committee of the National Research Council.
8. Charles D. Hurd and Leroy U. Spence. The Pyrolysis of *N*-Butane and Isobutane.
9. S. C. Lind and George Glocker. The Action of Electrical Discharge on Ethane.
10. H. S. Davis. Problems in the Analysis of Unsaturated Hydrocarbon Mixtures.
11. Robert N. Pease. Themal Decomposition and Oxidation of the Simpler Hydrocarbons.
12. P. Borgstrom, L. M. Ellis, Jr., and E. Emmet Reid. Reaction of a Variety of Known Mercaptans in a Naphtha Solution with the Doctor Solution.

Wednesday, 2 p. m.

13. F. E. Bartell and F. L. Miller. Displacement of Petroleum Oil from Oil-Bearing Sands. 1—The Degree of Wetting of Silica by Crude Oils.
14. A Skinner and G. G. Brown, Jr. True Volatility from the A.S.T.M. Distillation.
15. Robert A. Baxter. The Refining of Shale Gasoline.
16. Robert A. Baxter. The Effect of Variations in Retorting Conditions on the Quality of Oil Produced from Shales.
17. G. G. Brown, Jr. Antiknock Testing.
18. J. C. Geniesse and H. F. Huf. Effect of Volatility of Petroleum Fractions on Detonation Value.
19. M. Garcia. Heat Transfer in Oils Flowing Through Pipes.

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URGES COMMERCIAL DEVELOPMENT OF HELIUM GAS PRODUCTION

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 14.—Discussion of the Army appropriation bill in the United States Senate gives ample evidence of the necessity for the development of a commercial industry in the production of helium gas.

Senator Bingham of Connecticut is an ardent advocate of the lighter-than-air ship and he is confident there is an abundant supply of helium gas to maintain a considerable fleet of dirigibles for many years.

The recent flight of the Los Angeles from Panama to New York in 38 hours has produced an impression on Congress of the value of the lighter-than-air-ship. It has stressed the necessity for a supply of helium gas.

It is perfectly clear that only by intensive commercial operation will it be possible to extract sufficient helium gas to take care of naval and military needs as well as the needs of commerce.

Dirigible Mail Service

Representative Clyde Kelly of Pennsylvania has introduced a bill in the House of Representatives authorizing the payment of not more than $3 a pound by the Post Office Department for carrying mails over the air routes for distances of more than 2,000 miles. This provision is for the purpose of encouraging an air mail service across the Atlantic Ocean. In effect, it is to meet the proposal of a British company to operate an air service with a dirigible now completed and over twice as large as the Los Angeles.

As this British lighter-than-air ship can carry 6,000 pounds it would have a potential gross income for each trip across the Atlantic of about $18,000 for the carriage of mails.

Senator Bingham advocates an appropriation by Congress of $8,000,000 to construct two great rigid airships for the navy. This will only be in keeping with the activities of other great powers which are developing airships of the Zeppelin type by government appropriation, as it is recognized that such a new industry can not be left to the initiative of private enterprise.

Senator Bingham is convinced that hazards in the navigation of the air are not so great as the reports of accidents would lead one to believe, both in respect to the airplane and lighter-than-air ship.

In this connection Senator Bingham referred to helium gas as of outstanding value for the inflation of rigid airships.

Enough Helium Available

"That helium will be available for use on all ships built for the American Navy and, indeed for commercial purposes, too, supposing that the commercial operators desire it, may be taken as axiomatic," said Senator Bingham, when advocating an $8,000,000 appropriation for two giant dirigibles.

"There is already in sight, its location well known and available as rapidly as wells are drilled to extract it, an amount of helium estimated to be sufficient for the normal operation for the greater part of a century of three ships of the largest size so far considered," continued the Senator.

"By more rapid drilling of wells the output could be increased to a rate of 5 or 10 or 25 large airships instead of 3, and there are other helium resources not accounted for in that total.

"Already helium is being regularly secured on contract from a privately owned field, in addition to that which comes from the work done under the direction of the Bureau of Mines. Shortage of helium need give no concern for the next generation unless the use of airships increases even more rapidly than the greatest optimists would at present be prepared to prophesy.

"Furthermore, the gas supply can be increased by the drilling of new wells even more rapidly than new ships could be built in which to use it. Even if the construction of two new rigid airships were to be inaugurated tomorrow and pressed forward with all possible vigor, the production of helium could easily be made to more than keep pace with the demands thus occasioned. Our special advantage in planning for the naval uses of airships in our possession of this priceless resource should never be overlooked.

"The potential importance of airships as naval scouts can hardly be overestimated. Airships can now be constructed which will have a speed approaching closely 100 miles an hour and will be able to maintain that speed for 48 hours or more, while capable of traveling over 10,000 miles at more moderate rates.

"The new ships projected would quite normally make a run from New York to Panama in 32 hours without dependence upon favoring winds. With a cruising speed well over twice that of any surface vessel, the area which they could keep under effective observation would be correspondingly increased. Scouting is a prime function of naval operations, and anything which adds to its effectiveness must be eagerly sought after.

"The airship can be of great service, too, in steady patrol of wide areas of sea bordering critical points in our overseas possessions. The flight of the Los Angeles gains a special significance from the prospective value in the event of war of such patrol-flying or lighter-than-air craft around the Canal Zone. The canal and other outlying possessions would benefit also by the use of airships as transports and message carriers for delivering important plans, supplies, or personnel from the United States at three times the speed possible with surface transport.

"Given airships for the purpose, high-ranking officers holding responsible posts in the canal defense could return to Washington for councils of war and be back at their posts of duty with a total elapsed time of three and a half days, and direct liaison in the form of personnel stationed in Hawaii and those in the Pacific Coast area. A craft offering so alluring a picture of varied naval and commercial utility simply can not be neglected. Even if the naval employment of airships, important as it is, were to be put aside entirely for the moment, there would still be ample reason for us to encourage airship construction and to take those steps which may be necessary to promote the creation of an airship industry. The commercial use of the airship deserves encouragement for its own sake. We should not be left in arrears in the upbuilding of an aerial merchant marine.

Depends on Government

"The success of American endeavors to get under way with commercial operation on international routes is for the present absolutely dependent upon the placing of governmental contracts to aid in the starting of an industry and the development of new designs. Commercial businesses may be expected to follow upon the construction and successful demonstration of new ships such as those authorized in the Navy's five-year aircraft program bill adopted by the Sixty-ninth Congress, but not yet started because of lack of authorization to make actual expenditures of money under any of the bases which have been found in any degree mutually acceptable to the Navy Department and to any available contractor.

"It is not to be expected, however, that private investors will lead the way and carry the entire risk in developing such ships as these, so enlarged in dimensions as to constitute a wholly new class. They have not done so in Great Britain, and it is hardly possible to expect that they could be persuaded to do so here. The field of rigid airship construction is one in which it is impossible to proceed by

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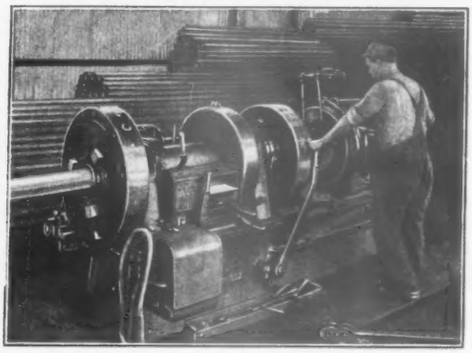

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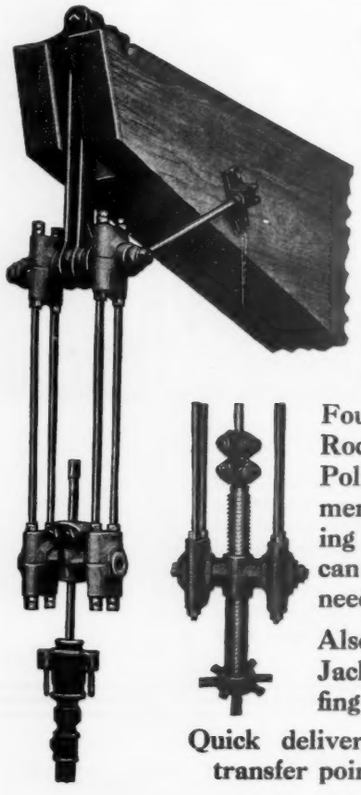

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short steps or upon a small scale. To manifest its particular advantage over the airplane in its own field operation the airship must have both high speed and the ability to make overocean flights of great length.

"The two things are compatible only in ships of relatively vast size, and the pioneer work in the design and construction of such ships might very properly command extensive governmental support even if there were no ultimate prospect except the commercial one. The ease and rapidity with which we shall take a share in the conduct of transoceanic air commerce depends primarily upon our action at this juncture. It is more than a year and a half since the bill authorizing the construction of two airships, each of 6,000,000 cubic feet capacity, became law. It is substantially a year since the appropriation was made to start work upon one of those ships, and yet no piece of material has been cut, no shop has been set aside for the construction, no contract has been signed."

COLOMBIA DENIES ANY OIL CONFISCATION LAW

HOUSTON, Tex., Apr. 14.—That the Colombian government is not antagonistic to North American oil companies was the statement of Santiago Rozo, general inspector of Colombia, who was in Houston the past week conferring with oil officials regarding development of that country's oil resources.

The general inspector claimed that recent laws passed by Colombia were not confiscatory, as reported, but aimed to protect oil companies in their right to develop the oil resources. In a formal statement he said:

"First, our law only obliges all oil companies interested to present the title of their property possessed in Colombia to the minister of industry in order to verify that in these titles there is not included any zones belonging to the nation.

"Furthermore, the oil companies are required to have a complete list of the oil zones to prevent individuals from selling zones which in reality belong to the government. The Colombian government will respect all concessions which have been granted in accordance with the law."

AID FOR BARTLESVILLE STATION

WASHINGTON, D. C., Apr. 14.—An appropriation of $500,000 is provided for the Bureau of Mines' experimental station at Bartlesville, Okla., in a bill which Congressman E. B. Howard of Tulsa has introduced in the House of Representatives. The intent is to make the Bartlesville station the chief government aid for the oil industry and to provide it with sufficient funds to deal with all technical problems of the industry.

COST PER BARREL OF STORAGE IS LESS IN LARGER SIZE TANKS

By George T. Horton

There are many varying factors entering into tank design that the most economical tank form changes in the same locality at different times, and in different localities at the same time. It is of course impractical to be constantly changing, and some compromise must be made.

The following theorems deduced from our studies clearly indicate the lines we should pursue in building tanks which will provide more economical storage than has heretofore been used:

Cost per barrel of storage decreases as size of tank increases up to a certain diameter and height.

The above, from a practical standpoint, is the most important conclusion we have evolved. The limiting size, under the A.P.I. specification, would have a diameter of 276 feet, a height of 45 feet, and a capacity of 475,000 bbls. if the tank were built in West Texas at the present time.

Before making these studies I had no idea that economies could be effected in tanks so large.

Most Economical Tank

The most economical tank obtains when its dimensions are such that the cost of the shell (less approximately one-half the cost of the bottom course) is equal to the combined cost of the bottom, roof, roof framing (exclusive of columns), and foundations.

From the above it is apparent that unit stresses, joint construction of shell, thickness of material in bottom and roof, and the character of construction, whether riveted or welded, are all factors.

As is generally the case where the soil is capable of supporting the load resulting from the most favorable height, the cost of foundation or grade, as a factor, has probably not been sufficiently considered. We have in fact neglected this particular point in making our own studies, and consequent amplification is necessary.

There is one certain diameter and height which will give the most economical storage for any given capacity. There is another and somewhat greater height which will give the most economical storage for any given diameter.

The best height for any given volume is practically constant. The best height for any given diameter increases slowly from the limiting size—probably not more than 10 feet greater at 90 feet in diameter than at 276 feet, the diameter of the limiting tank.

The above may perhaps be made clearer by example. For instance, if the best tank that will contain 80,000 bbls. is say 119 feet in diameter and 40.5 feet high, the best tank that can be built 119 feet in diameter should probably be 47 feet high, and will contain about 93,000 bbls. As tanks increase in diameter, the difference in height resulting from the two requisite decreases.

Of the three theorems propounded, the first is, as stated, the most important, the other two defining general principles for the best proportions.

The following tabulation indicates how much reduction in cost may be obtained by increasing the tank capacities:

Capacity in Barrels	Comparative Cost	Capacity in Barrels	Comparative Cost
50,000	105.6	175,000	91.5
55,000	104.4	200,000	90.0
60,000	103.2	250,000	87.7
80,000	100.0	300,000	86.3
100,000	97.8	400,000	83.2
125,000	95.6	475,000	82.1
150,000	93.3	.....	....

80,000 Bbls. as Unit

In the above table the average cost of 80,000-bbl. tanks has been taken as unity, this particular base being chosen in as much as 80,000 bbls. seems to be the popular capacity at present.

While the above tabulation applies to tanks of the best proportions the theorem holds true for other proportions. If, for example, soil conditions are such that it is not feasible to build a tank higher than, say, 25 feet instead of 40 to 50 feet (the best height), the lager the tank the less the cost up to the limiting diameter of 276 feet.

There ae generally practical reasons for not building to the extreme size listed. The proper tank size evidently depends upon the total amount of storage demanded at any one time and place, and is in part an actuarial problem. Nevertheless the economies obtainable in 150,000 and 175,000-bbl. tanks warrant their use.

Not many years ago 55,000 barrels was the largest unit. The table shows why 80,000 bbls. supplanted them, and clearly indicates why larger units will soon be in vogue.

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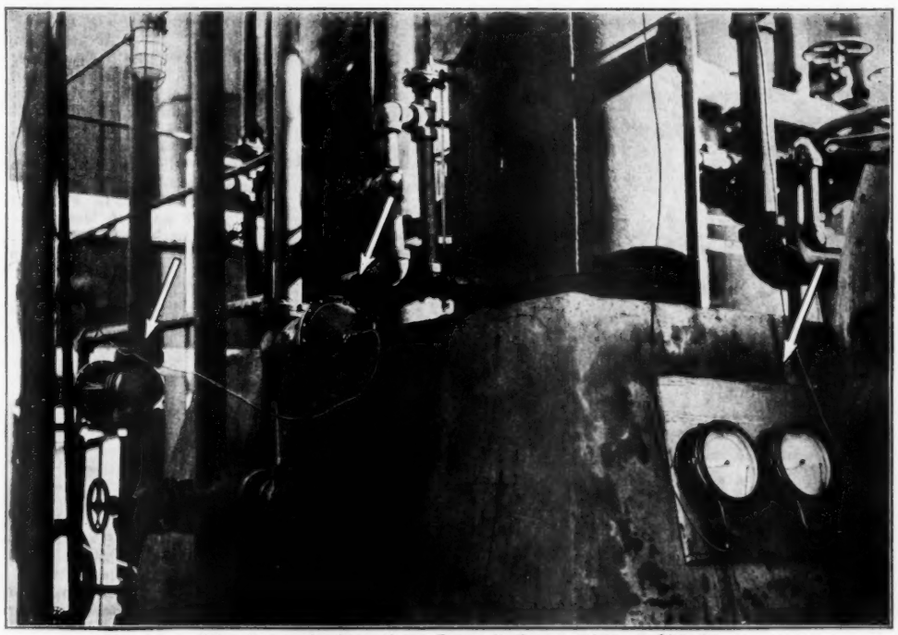

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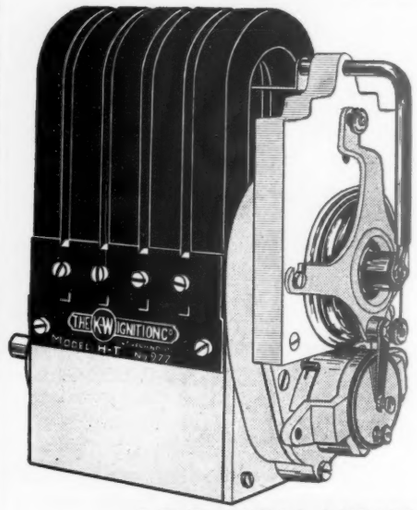

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Donley County

Martin & Watson's No. 1 W. J. Ball, 660 feet north and 360 feet east of the SW cor. of NE of Section 22, Block E, D.&P.R.R. Survey.

Gray County

Phillips Petroleum Co.'s No. 1 M. Davidson-Reiger, 330 feet south and east of NW cor. of NE of Section 87, Block B-2, H.&G.N. Survey. Prairie Oil & Gas Co.'s No. 1 W. W. Harrah, 330 feet south and west of NE cor. of the north 80 acres of the east 240 acres of Section 163, Block 3, I.&G.N. Survey. Ray & Massie's No. 2 A. Chapman, 330 feet north and west of SE cor. of SW of Section 51, Block 25, H.&G.N. Survey. The Shamrock Co.'s No. 2 W. S. Clayton-Chapman, 330 feet south and east of NW cor. of the east 280 acres of Section 50, Block 25, H.&G.N. Survey.

Hartley County

Amarillo Oil Co.'s No. 7 Lee Bivins-A, C of NE of Section 7, Block 25, E.L.& R.R. Survey. Same company's No. 8 Lee Bivins-A, midway north and south and 100 feet east of the west line of Section 4, Block 25, E.L.R.R. Survey. Same company's No. 9 Lee Bivins-A, C of NW of Section 6, Block 21, Capitol Syndicate Survey.

Hutchinson County

McKinney Gas Co.'s No. 1 F. P. Works, 330 feet north and east of SW cor. of SW of Section 5, Block Y-2, T. T.R.R. Survey. Gulf Production Co.'s No. 40 C. L. Dial and others, 925 feet north and 463 feet east of SW cor. of the John W. King Survey. Same company's No. 41 C. L. Dial and others, 660 feet north and west of SE cor. of NW of Section 130, Block Z, E.L.&R.R. Survey.

Potter County

Amarillo Oil Co.'s No. 6 Lee Bivins-A, 330 feet south and east of NW cor. of NW of Section 32, Block B-11, E.L.& R.R. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Bridwell Oil Co. and others' No. 2 L. F. Wilson, 150 feet north and 450 feet west of SE cor. of Lot No. 12, Wilson's Geraldine Subdivision. Dixie Oil Co.'s No. 1 L. McCrory, trustee, 150 feet south and 450 feet west of NE cor. of Lot No. 34, Wilson's Geraldine Subdivision.

Fain-McGaha and United Producers Co.'s No. 7 L. F. Wilson-B, 150 feet south and 444 feet east of the NW cor. of Lot No. 20, Wilson's Geraldine Subdivision. F. H. Gohlke and others' No. 4 L. F. Wilson, 150 feet south and east of NW cor. of Lot No. 235, Wilson's Geraldine Subdivision. D. O. Johnson and others' No. 4 L. F. Wilson-B, 450 feet north and west of SE cor. of Lot No. 19, Wilson's Geraldine Subdivision.

Petroleum Producers Co. and others' No. 2 L. F. Wilson, 150 feet north and 450 feet east of the SW cor. of Lot No. 13, Wilson's Geraldine Subdivision. Panhandle Refining Co. and Grisham's No. 5 W. R. Farmer-A, 1,732 feet north and 3,358 feet east of the SW cor. of the J. Poitevent Survey No. 1, A-347. C. L. Richardson's No. 1 J. T. Richardson, 150 feet south and 600 feet west of NE cor. of west 50 acres of south 80 of the W. C. McCune Survey, A-943.

Brown County

Amerada Petroleum Corp.'s No. 1 J. Beck, 250 feet south and 150 feet east of the most westerly NW cor. of the J. Beck tract out of the T.&N.O. Survey No. 43. Anna Belle Oil Co.'s No. 2 Roy Hickman, 1,550 feet south and 150 feet east of the most westerly NW cor. of the R. Hickman 914-acre tract out of the T. Benson Survey No. 783, being 150 feet north and east of SW cor. of their 80-acre lease. Buffington & Smith's No. 1 C. T. Moore, 1,666 feet south and 2,023 feet east of NW cor. of the C. T. Moore 368-acre tract out of the John L. Williams Survey No. 146.

Cranfill & Reynolds' No. 2 W. E. Hill-B, 1,328 feet north and 150 feet west of SE cor. of the W. E. Hill 213-acre tract out of the Myram Mudgett Survey No. 63, being 150 feet south and west of NE cor. of their 50-acre "B" lease. Same company's No. 1 J. W. Newton-B, 3,750 feet north and 3,400 feet west of SE cor. of the R. Honeycutt Survey No. 622, being 150 feet north and east of SW cor. of Lot No. 14. Fred Hollendick's No. 7 C. D. Stone-Willis, 750 feet south and 150 feet east of NW cor. of his 73-acre lease out of the E.T.R.R. Survey No. 157.

Henshaw Oil Corp.'s No. 6 P. U. Bush, 150 feet south and 750 feet west of NE cor. of their 77-acre lease out of James Kinney Survey No. 624. Came corporation's No. 7 P. U. Bush, 1,050 feet south and 150 feet west of NE cor. of their 77-acre lease out of the James Kinney Survey No. 624. Same corporation's No. 8 P. U. Bush, 750 feet south and 450 feet west of NE cor. of their 77-acre lease out of the James Kinney Survey No. 624.

Jay Hawk Oil Co.'s No. 5 B. S. Boysen, 450 feet north and 150 feet west of SE cor. of the north 40 acres of the H. Pressler Survey, A-2,041. Kone Production Co.'s No. 1 R. Hickman-C, 750 feet south and 2,450 feet east of the most westerly NW cor. of the R. Hickman 914-acre tract out of the T. Benson Survey No. 783, being 150 feet north and east of the SW cor. of their 28.7-acre "C" lease.

Mexana Oil Co.'s No. 1 A. K. Bradley, 150 feet north and west of SE cor. of NE of the W. E. Smith Survey, A-869. Midland Oil Co.'s No. 2 G. T. Butler, 450 feet north and 150 feet west of the most southerly SE cor. of the G. T. Butler 215.68-acre tract out of the T. Benson Survey No. 783. Mitcham and others' No. 1 C. A. Thomason, 750 feet north and 1,050 feet east of the most westerly SW cor. of the J. J. Clelland Survey No. 64.

Phillips Petroleum Co.'s No. 11 Roy Hickman, 2,550 feet south and 3,900 feet east of the NW cor. of the T. Benson Survey No. 783, being 150 feet south and 450 feet east of the NW cor. of their lease. E. L. Smith Oil Co.'s No. 2 H. M. Trueheart estate, 150 feet north and 450 feet east of the SW cor. of the M. B. Lamar Survey No. 638. Cox & Drake's No. 1 Mrs. M. A. Culberson, 450 feet south and west of NE cor. of the Jesse Cason Survey, A-1,393. E. R. Marts' No. 1 Mattie R. Coggin estate, 1,500 feet southwest of the northeast line and 1,500 feet southeast of the northwest line of the James Winn Survey No. 138.

Clay County

Western Oil Corp. and others' No. 2 Luther Wright, 1,825 feet south and 450 feet east of NW cor. of the E half of Section 2,632, T.E.&L. Survey. Same company's No. 3 Luther Wright, 1,525 feet south and 450 feet east of NW cor. of the E half of Section 2,632, T.E.&L. Survey.

Coleman County

Levi Smith's No. 1 T. B. Hill-A, 150 feet south and 761 feet west of NE cor. of the T. B. Hill 180-acre tract out of the S. Sprague Survey No. 664. Continental Oil Co. and others' No. 1 M. T. Overall-F, 990 feet north and 1,560 feet west of SE cor. of the R. H. Overall Survey No. 66.

Comanche County

Hoffer Oil Corp.'s No. 1 A. J. Thompson, 150 feet south and 2,640 feet west of NE cor. of Section 16, Deaf & Dumb Asylum Land.

Cooke County

Fain-McGaha Oil Corp.'s No. 3 J. W. Chaffin, 2,000 feet south and 1,150 feet west of NE cor. of the J. W. Chaffin 181-acre tract out of the E. Reed Survey, A-849. Oil Operators Trust Co.'s No. 1 Etta Haigler, 300 feet south and west of NE cor. of the J. S. Jones Survey, A-534.

Eastland County

Adamson & Bearman's No. 1 J. A. Woods, 150 feet south and west of NE cor. of the south 20 acres of the west 87 acres of the SW of Section 4, T.&N.O. Survey. J. M. Gholson and others' No.

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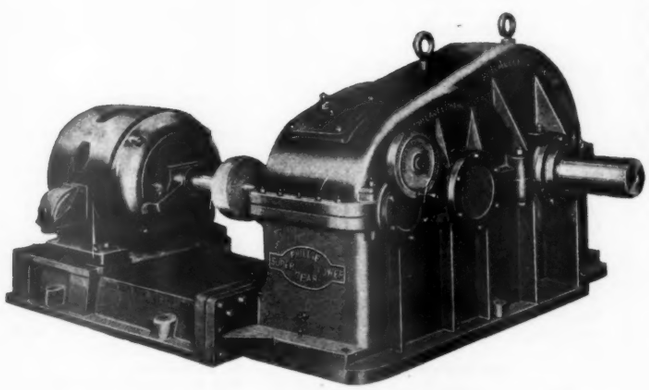

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1 Ora B. Jones, 450 feet south and east of NW cor. of the east 100 acres of the west 265 acres of the Ora B. Jones 565-acre tract out of the S. N. Mathis Survey. Goodwin and others' No. 2 J. V. Parker, 330 feet south and 175 feet east of NW cor. of the J. V. Parker 50-acre tract out of the W. Van Norman Survey.

McLester Oil Co.'s No. 1 J. W. Gailey, 2,300 feet north and 300 feet east of the SW. cor. of the J. Delaney Survey. Ed V. Parsons and others' No. 4 V. N. A. Blackwell, 800 feet south and 1,250 feet west of NE cor. of Section 13, McLennan County School Land, League 2. L. Teatsorth and others' No. 1 O. C. Holcomb and others, 150 feet south and east of NW cor. of SW of Section 1, Block 1, Block 4, H.&T.C. Survey. Tom Bryant's No. 1 N. Pinkston, 200 feet north and 1,674 feet west of the most easterly SE cor. of the N. Pinkston tract out of the G. Glick Survey.

Ector County

The Texas Company and J. S. Cosden's No. 6 W. E. Connell, 330 feet south and east of NW cor. of Section 10, Block B-16, Public School Land.

Hood County

Hatfield Petroleum Co.'s No. 1 D. C. Cogdell, 1,250 feet northwest of southeast line and 9,722 feet northeast of the southwest line of the most northern Thomas Robinson Survey, Certificate No. 1-1,555.

Howard County

Sweeney and others' No. 6 Otis Chalk, 2,310 feet north and east of SW cor. of Section 124, Block 29, W.&N.W.R.R. Survey.

Jack County

Buttram Petroleum Co.'s No. 2 C. K. Cullers-Sporer, 2,025 feet south and 200 feet west of NE cor. of Section 2, S.F. I.W. Survey, A-2,147. Shaw Oil Co.'s No. 9 J. W. Cullers and others, 375 feet south and 1,375 feet west of the most easterly NE cor. of their 80-acre lease out of Section 4, S.P.R.R. Survey, A-2,-188.

Jones County

Hucony Gas Co. and Atkinson & Sandefer's No. 1 J. W. Tiner, 160 feet south and west of the most northerly NE cor. of the J. W. Tiner 371.6-acre tract out of Section 14, Block 19, T.P.R.R. Survey.

Montague County

Bridwell & Heydrick and Continental Oil Co.'s No. 6 H. C. McGaughy, 1,000 feet north and 1,144 feet east of SW cor. of the C. Chacon Survey, A-143. R. I. Carter's No. 5 E. J. Bouldin, 713 feet north and 1,244.5 feet east of SW cor. of the C. Chason Survey, A-140, being 126 feet south and 400 feet west of the NE cor. of his lease.

Palo Pinto County

Gordon & Gholson's No. 1 C. V. McDonald, 2,640 feet south and 660 feet east of NW cor. of Section 38, Block 1, T.P.R.R. Survey.

Pecos County

Red Bank Oil Co.'s No. 3 M. A. Smith, 1,404 feet south and 1,980 feet east of NW cor. of Section 24, Block 194, G.C.& S. F. Survey. Southern Crude Oil Purchasing Co.'s No. 1 Scharbauer Cattle Co., 330 feet north and east of SW cor. of Section 21, Block 134, T.&St.L. Survey.

Reagan County

Roxana Petroleum Corp.'s No. 1 University Land, 330 feet south and east of NW cor. of Section 30, Block 11, University Land.

Shackelford County

Boehn and others' No. 1 W. Y. & R. A. Davis, 1,230 feet north and 660 feet west of SE cor. of SW of Section 17, Block 14, T.P.R.R. Survey. Catlett and others' No. 1 F. W. Alexander, 200 feet southeast of the northwest line and 960 feet northeast of the southwest line of Section 580, T.E.&L. Survey. J. O'Donahoe's No. 1 J. B. Mathews, 150 feet south and east of NW cor. of Section 28, Block 10, E.T.R.R. Survey. Eli Evans and others' No. 2 B. A. King, 550 feet north and 150 feet east of SW cor. of Section 1, Block 14, T.P.R.R. Survey. C. Phillips & DeWitt's No. 2 W. Y. & R. A. Davis, 660 feet south and 2,640 feet east of NW cor. of the S half of Section 19, Block 13, T.P.R.R. Survey. Roeser & Pendleton's No. 17 W. I. Cook-C, Section 60, 220 feet south and 982 feet west of the NE cor. of Section 60, Block 10, E.T.R.R. Survey. Tannehill Oil Co.'s No. 1 J. B. Matthews, Section 27, 150 feet north and east of the SW cor. of Section 27, Block 10, E.T.R.R. Survey. The Texas Company's No. 1 M. Scarborough, 1,525 feet south and 160 feet east of the NW cor. of the E half of Section 12, Blind Asylum Land.

Upton County

Evans & Wilburn's No. 1 University Land, 30 feet north and 15 feet west of SE cor. of Section 10, Block 15, University Land.

Wichita County

T. M. Conrey's No. 13 Hiram Willis, 1,520 feet north and 490 feet east of SW cor. of the B.B.B.&C. Survey, A-29.

Grayce Oil Co.'s No. 1 W. W. Overby, 150 feet north and 150 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12. Same company's No. 2 W. W. Overby, 150 feet north and 450 feet east of SW cor. of W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12. Same company's No. 3 W. W. Overby, 150 feet north and 1,050 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12.

Same compeny's No. 4 W. W. Overby, 750 feet north and 1,050 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12. Same company's No. 5 W. W. Overby, 750 feet north and 1,350 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12. Same company's No. 6 W. W. Overby, 450 feet north and 1,050 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12. Same company's No. 7 W. W. Overby, 450 feet north and 1,350 feet east of SW cor. of the W. W. Overby 238.1-acre tract out of the H. B. Balch Survey, A-12.

Holbrook & Wood's No. 17 Kemp & Kempner, 1,650 feet south and 450 feet west of NE cor. of Block 82, Kemp Wichita Valley Land. G. B. Owens and others' No. 1 J. E. Roller estate, 4,900 feet south of the northeast corner and located on the east line of Section 4, H.T.&B. Survey, A-551, being 750 feet south of the south bank of the Wichita River.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 4 W. T. Waggoner-L, 1,050 feet south and 150 feet east of NW cor. of the south 200 acres of the north 300 acres of the E half of Section 31, Block 4, H.&T.C. Survey. Same company's No. 5 W. T. Waggoner-M, 150 feet south and east of NW cor. of SW of SW of Section 24, Block 4, H.&T.C. Survey.

Manhattan Oil Co.'s No. 1 W. T. Waggoner-A, 205 feet south and west of the NE cor. of SE of NW of Section 3, Block 4, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner-B, 205 feet south and east of the most northerly NW cor. of the north 320 acres of Section 4, Block 5, H.&T.C. Survey.

Milham Corp.'s No. 19 W. T. Waggoner-B, 2,215 feet south and 150 feet west of NE cor. of their "B" lease out of Section 31, Block 4, H. &T. C. Survey. The Texas Company's No. 2 W. T. Waggoner-C, 150 feet north and 205 feet east of SW cor. of NW of SW of Section 24, Block 4, H.&T. C. Survey. Tower & McKanna's No. 3 W. T. Waggoner, 966 feet south and 200 feet west of NE cor. of SW of NE of Section 30, Block 4, H.&T. C. Survey.

Winkler County

Humble Oil & Refining Co.'s No. 14 Grisham-Hunter, 330 feet south and 990 feet east of NW cor. of Section 41, Block B-5, School Land. Independent Oil & Gas Co.'s No. 6 Grisham-Hunter-B, 330 feet south and 1,650 feet east of NW cor. of Section 41, Block B-5, School Land. Pure Oil Co.'s No. 13 Grisham-Hunter-B, 990 feet north and west of SE cor. of Section 34, Block B-5, School Land. Same company's No. 14 Grisham-Hunter-B, 990 feet north and 1,650 feet west of the SE cor. of Section 34, Block B-5, School Land. Same Company's No. 15

Pure Oil Co.'s No. 16 Grisham-Hunter-Grisham-Hunter-B, 1,650 feet north and west of the SE cor. of Section 34, Block B-5, School Land.

B, 1,650 feet north and 990 feet west of SE cor. of Section 34, Block B-5, School Land. Southern Crude Oil Purchasing Co.'s No. 4 T. G. Hendrick, T-88-M, 1,650 feet north and 990 feet east of SW cor. of Section 33, Block 26, School Land. Texon Oil & Land Co.'s No. 3 Grisham-Hunter-B, 330 feet north and 990 feet east of NW cor. of Section 45, Block 26, School Land.

Young County

Allday Oil Corp.'s No. 3 C. W. Johnson-B, 450 feet south and 150 feet east of the NW cor. of Lot No. 15, E. W. Sergeant Survey, A-253. Allday Oil Corp. and Carter's No. 7 J. B. McKinley, 150 feet south and east of NW cor of south 25 acres of east 65 acres of Section 1,489, T.E.&L. Survey. Anderson & Chancellor's No. 1 C. H. Miller, 450 feet north and 750 feet east of SW cor. of north 132.5 acres of Section 1,916, T.E.&L. Survey.

Consolidated Oil Co. and Kimberlin's No. 1 J. M. Nall, 150 feet south and 750 feet west of NE cor. of north 80 acres of SE of Section 1, B.S.&F. Survey, A-40. Cooper & Goldsmith's No. 1 J. B. Adams, 150 feet south and west of NE cor. of south 20 acres of J. B. Adams 54.5-acre tract out of the S. Sallie Survey, A-252. J. C. Cunningham's No. 5 B. Hawkins, 150 feet south and 750 feet west of NE cor. of Section 1,918, T.E.&L. Survey. Kelleher & Rogers and others' No. 1 J. S. Stratton, 1,294 feet north and 2,483 feet east of SW cor. of Section 1, B.B.B. &C. Survey, A-33. C. Kleiner and others' No. 2 B. Hawkins, 450 feet south and 1,470 feet west of NE cor. of Section 1,914, T.E.&L. Survey.

C. Kleiner and others' No. 5 C. W. Langston, 750 feet south and 450 feet west of NE cor. of south half of Section 1,490, T.E.&L. Survey. W. H. Meyers, trustee's, No. 2 C. W. Johnson, 450 feet north and 150 feet east of SW cor. of east 40 acres of west 80 acres of south 200 acres of the C. W. Johnson 1,026-acre tract out of the Ed W. Sargeant Survey, A-253. J. C. Parker and others' No. 1 J. A. Holt, 150 feet north and 750 feet east of NW cor. of SE of Section 2, B.B.B.&C. Survey, A-1,385. Pennell Oil Co.'s No. 4 J. L. Boone, 150 feet south and 750 feet east of NW cor. of Section 1, B.B.B.&C. Survey, A-34. Shappell Oil Co.'s No. 5 C. W. Johnson, 150 feet north and 750 feet east of SW cor. of Ed W. Sergeant Survey, A-253.

Shaw-Riggs and others' No. 2 J. B. McKinley, 200 feet north and 450 feet east of SW cor. of north 40 acres of east 65 acres of Section 1,489, T.E.&L. Survey. Simms Oil Co.'s No. 1 S. T. Moreland, 948 feet north and 1,144 feet east of SW cor. of Section 1,485, T.E.&L. Survey. The Texas Company's No. 1 W. R. Gegg, 150 feet south and 1,834 feet east of NW cor. of the W. Mathews Survey, A-1,484, being 150 feet south and west of NE cor. of the W. B. Gegg 80-acre tract.

J. Abernathy's No. 1 M. Morgan and others, 1,233 feet south and 1,600 feet east of the most westerly NW cor. of Section 3,413, T.E.&L. Survey. Nash & Windfohr's No. 1 R. M. Williams-Phillips, 325 feet southeast of the northwest line and 100 feet southwest of the northeast line of the M. L. Lassiter Survey, A-1,964.

Corrected Locations

In Brown County: Fred Moellendick's No. 5 C. D. Stone-Willis, 450 feet south and 150 feet east of NW cor. of his 73-acre lease out of E.T.R.R. Survey, No. 157. John Sindorf and others' No. 1 Hamp Byler, 1,170 feet south and 810 feet west of NE cor. of Section 31, H.T. &B. Survey.

In Pecos County: Douglas Oil Co.'s No. 2 Mytle Sellman, 990 feet south and 2,310 feet east of NW cor. of Section 14, Block Z, T.C.R.R. Survey. McMan Oil & Gas Co. and Marland Oil Co.'s No. 16 I. G. Yates, 210 feet south and 330 feet east of SE cor. of Section 103, Block 194, G.C.&S.F. Survey, and located in Section 34½. Mid-Kansas Oil & Gas Co.'s No. 18 I. G. Yates-A, 811 feet south and 871 feet west of NW cor. of Section 60, Block 1, I.&G.N. Survey, and located in the I. G. Yates Survey, A-8,195.

OIL LIMIT OUTLINED IN PENNSYLVANIA AREA

HARRISBURG, Pa., Apr. 14.—Drilling east of a line from the southeast corner of Green County to the northeast corner of Tioga County will not produce commercial quantities of oil according to a statement prepared by Dr. George H. Ashley, head of the Bureau of Topographic and Geologic Survey in the Pennsylvania Department of Internal Affairs.

With the approach of spring and summer so many inquiries have reached the department regarding the possibility of finding oil in the eastern part of the State that Doctor Ashley prepared a statement to help those who may invest their money unwisely.

The state geologist pointed out that eastern and central Pennsylvania contain no oil of commercial value because no drilling in those sections has ever produced any quantity of oil or gas, that nowhere in the world have rocks similar to those in central and eastern Pennsylvania yielded oil, and because the absence of oil in these sections seems reasonable in the light of all that is known about oil and gas. Pennsylvania has many kinds of coal differing in the amount of gas and carbon they contain. In western Pennsylvania are high gas coals; in the center of the State are low gas or smokeless coals or high carbon coals; in the eastern part of the State is the anthracite which is nearly all carbon. Accordingly all of the oil actually found in Pennsylvania in commercial quantities occurs where the coals are of high gas content.

Likewise there are in Pennsylvania many black shales, many of which have been tested for oil. Those in the northwest part of the State are found to yield from one-half barrel to a barrel of oil or more to a ton of shale. Coming eastward the black shales yield less until in Cambria and Clearfield Counties they yield only a few gallons instead of a barrel. Shale found east of Allegheny Mountain yield no oil upon distillation.

Doctor Ashley explained that the rocks underlying most of Pennsylvania were laid down in the Paleozoic time, that is before the time of reptiles, estimated by geologists to have been between 300,000,000 and 600,000,000 years ago. In many of these rocks there doubtless accumulated sea weeds and possibly other plants from which oil is thought to have been derived.

"After these rocks were laid down," says Doctor Ashley's statement, "there came crushing forces acting like a giant shove from the southeast to the northwest that crushed and crumpled the rocks in the southeast corner of the State. It is believed that this folding and crumpling of the rocks not only changed their position, making them stand more or less on end, and their character but so heated and cracked them that the oil and gas material in them was distilled off and escaped just as though they had been heated in a retort. At the east the effect was practically to coke the coal and black shales, leaving the coal and anthracite and the black shale as carbonaceous shale without any bitumen or oil. In the center of the State, where the effect was less severe, the coal was changed to a high-carbon or smokeless coal and the black shales were left with only a very small amount of bituminous matter from which oil could be distilled. Farther west, where the folding was still less severe, the coal was changed to medium volatile or coking coal and the shales left, so that they will yield more oil and drilling finds large quantities of natural gas. Still farther west, in the region west and north of Pittsburgh, we come to the high-gas coals and highly productive oil shales, and the gas wells are "wet" with light oil and there we find oil by drilling."

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GENERAL TEMPERATURE OF GROUND IN RELATION TO PIPE LINE DEPTH

By E. L. Rawlins[1] and T. W. Johnson[2]

A previous report has explained that pipe lines for the transmission of natural gas should be buried to minimize temperature fluctuations because when excessive the later decrease accuracy in measuring gas volume and increase leakage of gas due to expansion and contraction in the pipe joints. These effects are governed by the rapidity of the temperature fluctuations and by the total variation over a period of time. The temperature of gas flowing through a pipe line depends to a large extent upon the temperature of the ground adjacent to the pipe line; hence, fluctuation of the ground temperatures at various depths determines the economic depth at which pipe lines should be buried.

This report covers a record of the daily atmospheric temperature fluctuations at Bartlesville, Okla., for 12 months and a similar concurrent record of the temperature variation 1, 2, 3 and 4 feet below the surface of the ground.

Method of Conducting Tests

The ground temperatures were obtained by placing external bulbs of recording thermometers in direct contact with the ground at the different depths. The thermometers for recording the atmospheric temperature were placed within a specially constructed louver house. All thermometers were of the external bulb type and had been calibrated against standardized mercurical thermometers. There was a daily atmospheric variation ranging from 2 to 42 degrees Fahrenheit. By calculation, the average daily variation was shown to be approximately 20 degrees.

The maximum atmospheric temperature recorded during the period of the tests was 100 degrees Fahrenheit, and the minimum temperature was 0 degrees Fahrenheit; hence there was a total temperature variation of 100 degrees Fahrenheit for the period of the tests.

The atmospheric temperature fluctuations were very rapid. For instance, the maximum atmospheric temperature recorded September 23, 1926, was 95 degrees Fahrenheit. The maximum atmospheric temperature recorded September 24, 1926, was 48 degrees Fahrenheit. There was therefore a 47-degree change in the maximum temperatures from one day to the next. A comparison of the maximum temperature of one day with the minimum temperature of the day following shows a still greater variation. On the above dates this temperature span was 53 degrees Fahrenheit.

Comparing atmospheric conditions with underground conditions it is seen that temperature fluctuations are greatly reduced beneath the ground surface. Even at the shallow depth of 1 foot there were no excessively rapid fluctuations, as noted under atmospheric temperatures. At a depth of 1 foot there was never a daily fluctuation greater than 3 or 4 degrees Fahrenheit and that there was a total variation during the entire period of the tests of 52 degrees Fahrenheit. At a depth of 2 feet the total temperature variation was 40 degrees Fahrenheit; at a depth of 3 feet this variation was 34 degrees Fahrenheit; and at 4 feet this variation was 22 degrees Fahrenheit.

The average temperature of the ground beneath the surface for the entire test approximated the 60-degree value used as a basis for defining the standard cubic foot of gas. The average daily temperature at each depth from May 12, 1926, to May 26, 1927, was calculated. The average temperature at a depth of 1 foot was 60 degrees Fahrenheit; at a depth of 2 feet, 62 degrees Fahrenheit; at a depth of 3 feet, 65 degrees Fahrenheit; and at a depth of 4 feet, 66 degrees Fahrenheit.

As the depth is increased the minimum temperature to which a buried pipe line would be subjected is increased. The minimum temperature recorded for each depth was: 1 foot, 36 degrees Fahrenheit; 2 feet, 39 degrees Fahrenheit; 3 feet, 48 degrees Fahrenheit; and 4 feet, 54 degrees Fahrenheit.

Value of Burying Pipe

The results of these tests show the importance of ditching and burying pipe lines when possible. They also give some indication of the economical depths of cover required to offset undesirable temperature fluctuations. The economical depth is that at which the temperature fluctuations are reduced without excessive cost. A careful study of the cost of ditching and burying pipe lines should be made in each case to determine the economical depth of cover.

In general, pipe lines through which natural gas is flowing should be buried to offset the effect of temperature fluctuations. However, the results of these tests indicate that deeper ditching than is at present considered good practice for transmission lines is not warranted. The excessive costs of ditching and burying lines under such conditions probably would be greater than the advantages gained by reducing the temperature fluctuations at the greater depths. The rapid daily fluctuations are eliminated for all practical purposes within 1 foot of the ground surface, and the total annual variation is reduced by over half at a depth of 2 feet.

The temperature tests described in this report were conducted in one locality only, and the actual data, therefore, are strictly applicable only to the one set of conditions under which the temperatures were taken. However, the general effects of temperature variations obtained by a comparison between atmospheric and ground temperatures are probably the same in any part of the country, and the results in this particular case indicate what may be expected under other conditions. One condition which possibly would affect the results would be continued freezing of the ground throughout a season. No tests have been conducted under such conditions, and it is not known what depths would be required to eliminate the effects of continued low temperatures. It would be highly desirable in such cases, however, to have the pipe line buried below the frost line.

The study of the effects of temperature upon gas flowing in pipe lines will be continued by the bureau with special emphasis on measurement with orifice meters and measurement under vacuum in gasoline plant operation.

[1]Associate natural gas engineer, Bureau of Mines.
[2]Assistant natural gas engineer, Bureau of Mines.
Note—Published through courtesy United States Bureau of Mines.

G. D. LOCKE OPTIMISTIC ON REFINED MARKETS

CHICAGO, Apr. 14.—George D. Locke, vice president of the Barnsdall Refineries, Inc., is optimistic regarding the immediate future of refined oil prices after having returned from an extended trip through the Atlantic seaboard refining area.

Mr. Locke believes the Atlantic seaboard refiners will be unable to manufacture sufficient gasoline to supply the eastern territory, due to the fact that most of them are operating on Venezuelan crude which produces a relatively small yield of gasoline.

Some of the larger refiners on the seaboard have already purchased several cargoes of gasoline to be moved from California in April and May. Besides, he points out, there is a good export demand for United States Motor 60-62 and 64-66 gasoline, and he says there are indications of a shortage of kerosene.

The California market for motor gasoline is now about the same as the Mid-Continent, he says—6½ cents a gallon. With the heavy demand due to large con-

sumption many refiners are thinking seriously of advancing to 6¾ cents and some predict that motor gasoline within 30 days will be selling at 7½ cents a gallon.

If Mid-Continent refiners continue their runs of crude oil on the present basis, he considers the market bound to reach that level and kerosene likewise will advance, as there is little kerosene on the gulf and most of that product moving for export must come from Mid-Continent.

To Consider Uniform Tank Measurements And Gauge Tables

At the annual meeting of the American Petroleum Institute, at Chicago, the committee on uniform methods of oil accounting, by resolution, recommended "that the president of the institute appoint a joint committee composed of practical oil men and oil accountants to study the question of making uniform tank measurements and resulting gauge tables, and, if deemed advisable, have this committee investigate the feasibility of deleting decimal fractions of barrels in oil accounting."

Finding considerable sentiment favoring the formulation of standardized or uniform tank measurements and gauge tables for adoption in the industry, President E. W. Clark has appointed a committee to study the matter and make such recommendations as it deems proper to the board of directors of the institute. The committee is further requested to investigate and make recommendation in respect to the feasibility of deleting decimal fractions of barrels in oil accounting. It is believed by many that the development and general adoption of uniform methods of measuring and gauging tanks will result in saving a large sum of money for the industry.

Each member of the committee has been designated with the approval of an officer of the respective companies indicated. A few more members may be added later.

The chairman of the committee, C. A. Young, care of American Petroleum Institute, 1508 Kirby Building, Dallas, Tex., is to arrange an appropriate time and place for a meeting. The committee as appointed follows:

C. A. Young, chairman; H. M. Stalcup, Skelly Oil Co., Tulsa; Stuart Moser, Standard Oil Co. of California, San Francisco, Calif.; Herbert A. Gidney, Gulf Oil Corp., Pittsburgh, Pa.; F. W. Shay, Standard Oil Co. of New Jersey, Elizabeth, N. J.; Ira McFarland, The Texas Company, Houston, Tex.; Ray F. Shumaker, Prairie Pipe Line Co., Independence, Kans.; George H. Forster, Union Oil Co. of California, Los Angeles, Calif.; W. A. Sniffen, Magnolia Pipe Line Co., Dallas, Tex.; L. L. Langworthy, Midwest Refining Co., Casper, Wyo.; Clarence H. Jay, Pure Oil Co., Chicago, Ill., and E. L. Andrews, Northern Pipe Line Group, Lima, Ohio.

SERVICE BUTTONS GIVEN PRAIRIE CO. EMPLOYES

Solid gold service buttons, emblematic of more than 10 years' continuous service with the Prairie Oil & Gas Co., have been awarded 340 employes by Dana H. Kelsey, vice president of the company. Of this number, 45 will receive jeweled pins, denoting 30 years' continuous service. These pins are adorned with diamonds. H. C. O'Neil, in the tankage department, received this award. Emerald pins were given for 25 consecutive years, while the 20-year service pins are inset with rubies. John A. Wolfe of the land department was the recipient of a 20-year medal.

Frank Gray, head of the Prairie land department, was awarded a 20-year service medal. His father, R. S. Gray, received a medal merited by 15 years' continuous service. "Uncle Dick" has been with the Prairie 18 years, and will receive his 20-year medal in 1930.

Fred C. Cook, chief executive in charge of the Prairie's Tulsa branch, received a 10-year medal, as did Harry Norris, chief of the scouting department. Mr. Norris has been with the Prairie more than 12 years and will have his 15-year medal in 1931. Joseph Depew and Miss Willie Whitmore and Warren A. Spinney were also recipients of 10-year medals.

Personal letters accompanied each service button in which Mr. Kelsey states that "the management of the Prairie Oil & Gas Co. is not unmindful of the fact that loyal service, continuously rendered over a period of years by its employes, is to a great extent, responsible for the high status which the company has attained in the oil industry. It feels that such service should have some further direct recognition. It is with genuine pleasure on behalf of the board of directors that we present you with a badge emblematic of your loyal, continuous service. "May you wear it with the same degree of pride that the management has in presenting it to you, and may there be a continuance for many years to come of our work together in the service of the company."

Additional employes in the production department receiving 20-year pins were J. F. O'Donnell, D. H. McCarthy, W. E. Pearce, John M. Peck and John Schumaker.

Others in the land department receiving the pins are: Horace H. Atkin, 15 years; James P. Dougherty, 15 years; John Soladin, 15 years. Those receiving pins for 10 years' service are: O. S. Alloway, Rol Avery, Edward D. Coady, Walter K. Jackson, James F. Kuhns, John M. Houser, Martin P. Norwood, James T. Perryman, Edward G. Schroeck and Hampton A. Steele.

J. J. Brazil of the steel storage department, received a 15-year pin.

Those in the producing department, numbering 108, who received pins for 10 and 15 years of service are as follows: Rufus R. Newman, David J. Kennedy, Arthur L. Lindsey, George Brown, Otto J. Bachman, Harvey E. Blackstock, James A. Burton, George E. Blackstock, James W. Smith, Otis Skinner, James F. Sharp, Roger M. McClure, James B. Maxwell, John Leach, William F. Marr, William Maloney, Charles F. Newton, William M. Newport, James W. Morris, Harry O. Puakapile, Harvey O. Puakapile, Harvey A. Renschier, Frederick E. Rexford, Edward A. Riddle, Willard M. Robertson, Lyman L. Roller, Charles A. Rollins, Otho McClain, C. Henry Heller, William A. Hildreth, James M. Logan, George W. Gerhart, A. A. Gilbert, John F. Weible, George I. Stone, Wesley M. Fellers, George Conoly, Joseph F. Montgomery, John T. Webster, John Ramaklus, Oafer E. Place, David E. Phillips, Charles W. Gibson, Benjamin Filley, Daniel Gould William A. Granes, James W. Greer, Charles S. Yarger, Charles E. Troxel, Frank D. Griffitts, Jesse W. Hardy, Daniel M. Haught, Robert B. Emberton, James W. Evans, Jesse B. Eveland, John H. Heft, John A. Hillenbrand, John H. Wells, Elijah R. Weldon, William A. Taylor, Lucius C. Hixon, Leo G. Weldon, Robert F. Holt, James O. Hoover, William R. Bell, Josiah A. White, Lossom T. Taylor, George B. Sowdy, Joel H. Schoney, George Shimp, William A. Stephens, Clarence L. Wingate, Tulsa (15 years); Robert E. Rushin, Matthew Roth, John R. Ross, William E. Riddle, Thaddeus R. Richeson, Charles Alexander, T. N. Carter, L. B. Brandt, Osman Wadams, John A. Alspach, William L. Arnon, James A. Ashley, H. L. Aubrey, Sam E. Coffman, Thomas W. Collins, M. T. Croft, Robert W. Cunningham, Frank A. Dillard, Joseph F. Duse, R. H. Nesbit, John S. Moore, Sam B. Miller, John B. Carr, Olive C. Cappleman, George Farbo, William M. Jenkins, Thomas B. Calvin, Henry S. Love, Guy A. Most, and Raymond Hetzer. The last two are in the Tulsa office.

Those employes who are to receive the 20-year pins will be given a banquet at the Independence, Kans., office of the company.

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The Oil and Gas Journal
Classified Wants Department

DRILLING PRACTICE CONFERENCE IN RICHLAND PARISH GAS FIELD

By D. H. Bancroft

SHREVEPORT, La., Apr. 14.—Practically all the operators engaged in the Richland Parish, Louisiana, gas field at present attended a conference in Monroe recently called by W. F. Chisholm, supervisor of the minerals division of the Department of Conservation, for the purpose of familiarizing them with regulations covering drilling practice in the field and to consider certain additional requirements to protect the field against recurrence of crater wells and other accidents. Only on two points, or requirements, submitted by the supervisor was there any particular objection and these two were submitted to a committee of operators to work out and report on at a subsequent meeting. These were relative to size of casings to be used and a cold water test at the well of every joint of pipe used, and whether it should be required that each string be cemented farther up the preceding string than is now required. This committee is composed of B. M. Nowery, Palmer Corp., chairman; S. S. Hunter, Ouachita Natural Gas Co.; Latin Stanbury, Moody-Seagraves; L. W. Burroughs, Industrial Gas Co. and Natural Gas Producing Co. of Louisiana; Fred Stovall, independent, and H. R. Dickerson, Natural Gas & Fuel Corp.

Richland being a high-pressure area and one immense crater having been caused by methods which the department considers careless, and two or three other wells having developed salt water, the department thought it advisable to call a "safety meeting" to consider recommendations and regulations the department would like to impose or has imposed for the prevention of such accidents in the future.

Size of Casing

The first of these had to do with casing for third, or pay, string, and the supervisor announced that the department had fixed 6⅝-inch, 24-pound, 1,800-pound mill test seamless pipe, or the equivalent. Heretofore the only specification for third strings in Richland has been that the pipe must have a factor of safety of two. For second strings 8¼-inch, 32-pound, 1,300-pound mill test, or equivalent, will be acceptable. There was considerable objection by the operators to the specifications for second string on the ground that such heavy stuff is not necessary and the department finally agreed to accept 8-inch, 25-pound line pipe of 1,000 pounds mill test such as is in general use in Richland at present. There was also some objection to specifications for the pay string but the supervisor stood pat.

Assistance of the operators in obtaining thorough tests at the well of each joint of casing that is put into the ground was sought, Mr. Chisholm advising that the department has not sufficient funds to employ more men in Richland to the end that it might have one there to supervise such tests. He suggested that it is to the interests of the operators as well as for the best interests of the field and the State that such tests be most carefully made. He submitted to the operators a proposal that they share the expense of employing such inspector who would be commissioned by the department and clothed with all necessary authority. Most of the operators agreed and the question was referred to the committee named.

When it came to the question, or recommendation, of jacketing all strings farther up than is done at present, objection became more general, the operators feeling that the specifications for casings to be used were sufficient precaution without the additional expense entailed in jacketing strings their full length or for 200 to 300 feet up the preceding string. This question also was left up to the operators' committee.

Required test of casing at the well is a 1,400-pound cold water test for 6⅝-inch pipe and 1,500 pounds for 6¼-inch, the supervisor insisting that each joint be subjected to pressure for not less than one minute and urging upon the operators the necessity of a thorough test by competent men instead of leaving it to hands that may not be qualified. The use of second-hand casing is prohibited except in certain cases and then only upon special authority from the department after inspection and test of casing to be used. The operators were agreed against use of second-hand casing for final string and the specification was accepted with little discussion. Use of white lead in doping threads in making up all strings was also endorsed by them and made a specification.

Drilling Fluid

The department also had in mind making 14 to 15 pounds specification for weight of drilling fluid but when several of the operators reported that such is too heavy to be used successfully in Richland and that 11-pound mud had so far proved satisfactory the specification was amended to that weight, with the proviso that in coming out of the hole sufficient of the mixture of mud and baroids or iron oxide shall be pumped in to fill in behind the drill stem so that the well will not blow out against the lessened weight of the gas sand.

There was considerable discussion of a proposed specification requiring that in testing casing seats wells must be let stand six hours after bailing down 1,500 feet, but when it was submitted that in view of the general use of drill stem testing tools there is sufficient precaution and the further evidence that if a hole bails dry it is sufficient proof of a tight deal, the item was passed. However, it will be required of operators to set a repair string in case any considerable pressure develops between causes, and the department must be consulted in all cases.

While salt water has not made its appearance to any extent in the field at present, the department has adopted for future reference a requirement that siphons must be set in all wells where there is sufficient accumulation of water to require occasional blowing, and all wells showing bottom water must be cemented back.

Notice of Drilling In

It was requested of the operators that they give sufficient notice of bringing in a well so that an agent may be on hand to gauge it at the time instead of a day after or later. Elimination of all second-hand material in making up christmas trees was also urged on the operators, but was not made an order of the department, Mr. Chisholm feeling that the operators were in better position to judge when it would be safe to use such material, much of which is acceptable. He felt that stuff used, for instance on a dry hole, would be suitable and safe and he did not care to issue an arbitrary ruling condemning any pipe or fittings simply because it was branded "second hand" by having been used on a well. Extension wheels on master gates were called to the operators' attention more from the angle of how the extension is accomplished since use of such extensions is general practice in Richland.

Prompt reports by wire of all breaks, leaks and fires resulting from breaks and leaks in gas lines will be insisted upon. Present conservation regulations require such but Mr. Chisholm advised that observance of the requirements has become rather lax. He also reminded the operators of the regulation requiring removal of derricks from completed wells within a reasonable length of time.

Various other regulations were brought to the attention of the operators, among them: Drilling records must be kept at the well, in addition to the operators' office, where they will be readily accessible to department agents; use of flambeaux or open flares is prohibited; all wells supplying gas for any purpose, including fuel for drilling wells, must be

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metered; all wells must have signboards on the derricks giving the name of the lease, the operator, the number and the section, township and range.

REFRACTORY PROBLEM IN PETROLEUM REFINING

(Continued from Page 162)

posed of fire brick, insulating brick and red brick, because each of the materials in the composite wall is at a different temperature, has different coefficients of expansion and would tend to put the furnace wall under a strain. Most of the weakness of conventional furnace structure develops due to strains which would be absent in a tube still built up comparatively of smaller thickness and of uniform insulating refractory.

As soon as the insulating refractories are out of the semiexperimental stage in which they are at present, particularly as it applies to their mechanical strength and the ability to withstand actual operating conditions for a long time of service, it would pay the refining industry to consider their adoption for still construction on a commercial scale.

OIL AS PERSIAN ASSET IN COUNTRY'S REVENUES

A British Department of Overseas Trade report on the Finance and Commerce of Persia gives the Anglo-Persian Oil Company's output of oil in 1927 as 5,107,081 tons, bringing the total, beginning with 1913, to 29,954,191 tons. Royalties paid to the Persian treasury by the company in 1927 amounted to £1,389,612, bringing the total royalties, beginning with 1913, to £6,016,416.

The Anglo-Persian Oil Co. spends in Persia over £3,000,000 a year, of which £1,000,000 represents wages alone. The company imports into Persia every year foodstuffs for its staff, machinery and other materials which figure in the statistics for the country's import trade; these imports aggregated £1,219,000 in 1926-27, or 6.7 per cent of the total imports of that year.

Values of mineral oil exports are given in thousands of krans (the kran is worth about 10 or 12 cents, varying according to the price of silver). These exports were entirely of oil and products obtained by the Anglo-Persian Oil Co.:

1925-26: Total, 544,800, or 51.4 per cent of the total exports. Chief markets: Great Britain, 275,118; British India, 83,887; Egypt, 156,782.

1926-27: Total, 654,383, or 59.3 per cent of the total exports. Chief markets: Great Britain, 351,000; British India, 88,068; Egypt, 135,000.

AUSTRALIAN OIL NEWS

A Melbourne, Australia, report says that in January the Commonwealth Oil Refineries instituted a new method of distributing its motor spirit by selling in two grades, motor spirit in bulk being sold to traders at 1s. 9d. and 1s. 7d. per gallon, and retailed to the consumer at 2s. and 1s. 10d. respectively. The two grades are being marketed in Victoria, South Australia, New South Wales and southern Queensland.

The stockholders of the Roma Oil Corp., Ltd., which has recently completed its first year of development in Queensland, are to be requested, it is reported, to sanction an increase of £50,000 capital.

Foundation for the second location has been prepared. It is the general opinion that oil exists in Queensland over a large area.

TO STUDY MEXICAN TERMS

NEW YORK, Apr. 14.—The Association of Producers of Petroleum in Mexico held a meeting to consider the terms of the recent settlement of the controversy over the Mexican oil laws. The association, which includes in its membership most of the important American companies operating in Mexico, will hold another meeting to consider the matter further.

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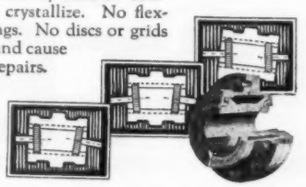

Instead, oil between the gear teeth, under centrifugal pressure, carries the load; and the coupling will last as long as the connected machines.

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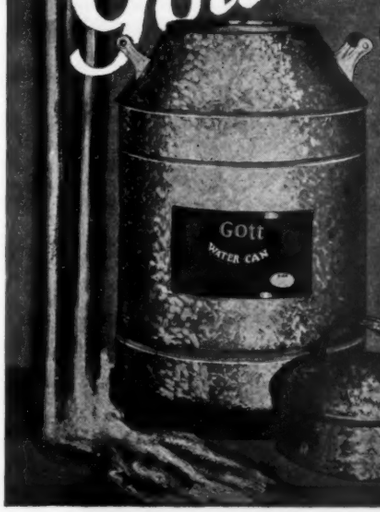

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Brazil Is Preparing To Retain Control Of Its Oil Resources

By Charles E. Kern

Washington Bureau. The Oil and Gas Journal

WASHINGTON, D. C., Apr. 14.—Evidences that Brazil has been moving toward nationalization of its petroleum resources or keeping them wholly within the control of its own citizens have existed for a long time but information that has just reached this country gives many details showing that a national sentiment has been developed against any foreign participation in the oil industry which it is hoped may be developed in this South American country.

The committee on agriculture of the Chamber of Deputies has now reported a modified petroleum bill which practically excludes foreign countries from oil enterprises in Brazil.

Some of the reasons that have promoted this policy of exclusion will surprise our Federal Conservation Board. The two deputies who reported this bill made it clear it was the reporting committee's opinion that petroleum resources should be reserved to the state and its nationals. They referred to the importance of oil in peace and war, the struggle between the great powers for the control of the great oil resources and the efforts of practically all countries, except the United States, to exclude foreign control of such resources.

"The English policy," the report states, "is characterized by exclusion of foreigners from control of petroleum reserves within the British Empire and the desire to exercise control over the reserves of other countries."

The report also quotes the "American Federal Commission" as stating:

"In Mexico and South America, oil fields exist which have not yet been explored. Our companies should without delay make explorations there for it is absolutely essential that these wells should be controlled in the future by American citizens."

After stating the British policy and quoting our own Federal Conservation Board, the report of the committee that framed this new bill, excluding foreign control, closes with the observation that Brazil should not close its doors to foreign capital, which is greatly needed, and that the law should be liberal wherever possible, but that in the interest of the future the example of other countries should not be lost sight of.

Dormant Until May

This bill for the future control of the oil resources of Brazil will lie dormant at least until May 3, Congress having adjourned at the close of the year until that day.

The bill as originally introduced imposed disabilities upon foreigners that are now regarded as unimportant compared with the modified bill just reported. Certain of that bill's provisions such as the clauses limiting concessions to 4,000 hectares and a period of 25 years, were discouraging but they were at least general in application. The new draft specifically disqualifies aliens from owning or operating petroleum deposits in Brazil.

Some of the more noteworthy modifications of the bill reported by the committee are Article 2, which provides that aliens shall be debarred from owning or operating petroleum deposits; Article 5, providing that the federal government may expropriate petroleum deposits whenever this appears to be necessary in the nation's interests, and Article 19, Section 2, providing that no more than 40 per cent of an oil company's capital may be held by aliens and that Brazilian citizens shall form a majority of the board of directors.

It is clearly indicated that the Brazilian government wishes to have foreign capital and at the same time wishes to exclude the foreigner from all control of any oil enterprise in which that capital may be invested.

This bill starts out by providing that all those holding options or leases for the

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exploitation of petroleum deposits from the respective native land owners shall be obliged to submit them to the government within the maximum period of six months from the publication of this law in the Official Gazette and the federal government may expropriate any petroleum deposits whenever necessary in the nation's interests.

The law is drastic in respect to the time allowed for investigation of oil lands. Six months is allowed for the initiation of the first drilling and five years for completion of all prospecting, which shall not be subject to an extension. This restriction applies to land owners who prefer to undertake the prospecting themselves or through third parties and if they fail to comply with these provisions of law, the government itself may make use of the land for prospecting for petroleum. The government may do this either directly or through concessions granted in accordance with the law.

Concessions for prospecting on lands lying within 60 kilometers from the coast and frontiers shall be denied to aliens.

Under concession granted by the government, the time limit for prospecting shall be from two to five years, which at the discretion of the government may be extended for two additional years. Prospecting shall be carried on in accordance with a working plan which must be previously submitted by the concessionaire and approved by the government.

The concessionaire shall obligate himself to keep the government informed of the development and results of his exploration work. The government shall designate a technician to ascertain how the approved plan is being carried out.

Unless a long series of obligations are strictly complied with, concessions shall lapse.

The production tax shall amount to 10 per cent of the net value of the petroleum extracted from the wells if the deposits are situated at a distance not exceeding 150 kilometers from the sea or from navigable waterways leading through to the sea, and of 6 per cent in all other cases.

The concessionaire shall be bound, within a period of three years from the date of his concession, to obtain the maximum production stipulated in the letters-patent. Failure to do so, if through his own fault, shall render him liable to payment of the production tax on the stipulated amount and not on the actual quantity produced, without prejudice to the surface tax. Should just reasons be advanced, the production tax shall be levied only on the actual quantities produced.

Terms of Concession

The concessionaire shall likewise be bound to give preference on a pro rata basis of production to the domestic consumption requirements for petroleum and its products, and to export only the surplus.

The concessionaire shall be further bound:

To employ in his exploiting operation national personnel, whether technical, administrative or operative, in the proportion to be determined upon in each case by the government;

To open and maintain schools and hospitals in the vicinity of his plant for his workmen and their sons;

To submit annually, for inspection of the government, a report on the status of the respective works and installations, labor statistics, stocks, sales and crude and refined production in accordance with the instruction given by the Ministry of Agriculture, Industry and Commerce;

To furnish all other explanations and information which, in general, may be required by the government, and especially data concerning cost of production and sales price on products destined for domestic consumption.

Those concessionaires who construct oil pipe lines must transport the oil of neighboring concessionairies in need of such transportation. Those who operate refineries shall also be obligated to refine the oil of others provided their capacity is more than their own production re-

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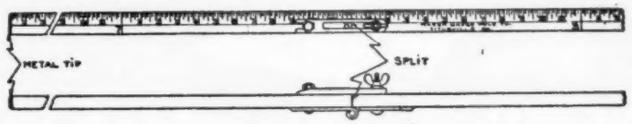

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quires. The government shall fix rates which shall be paid for these services.

Upon the expiration of 15 years, the government may expropriate the oil fields, refinery, transportation and storage facilities, the amount of indemnity payable to be decided by arbitration.

Upon the termination of the concession after 25 years, all the property involved shall revert to the government.

All companies operating in the oil fields shall be subject to Brazilian law and aliens may hold not more than 40 per cent of the stock and Brazilian citizens shall constitute a majority in the board of directors.

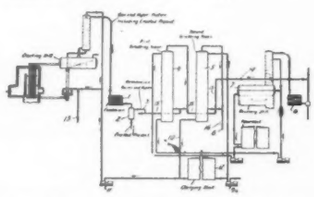
Concessionaires shall not negotiate either with foreign governments or with enterprises or individuals associated with them in any contract referring to prospecting, production or refining of petroleum. The infringement of this provision shall cause immediate lapse of the concession and loss of all rights derived therefrom.

Helium gas shall belong to the state, which will pay for its value.

It is clear from the wording of this proposed law that Brazil wishes no help to develop its oil resources except from capitalists and men seeking minor employment under Brazillian citizens or companies.

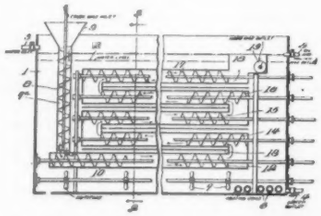
Recent Patents

1,663,868. Art of Cracking Hydrocarbons. George H. Taber, Jr., Rye, N. Y., assignor to Sinclair Refining Co., New York, a corporation of Maine. Filed June 24, 1926. Serial No. 118,357. Three claims. (Cl. 196—8.)



1. In cracking operations for the production of lighter hydrocarbon oils from heavier hydrocarbon oils in which vapors and gases are taken off and subjected to a condensing operation, the improvement which comprises subjecting the gas and vapor mixture remaining uncondensed thereafter first to treatment with an absorbent medium from which absorbed constituents are recovered by treatment independent of the cracking operation and then subjecting the still remaining uncondensed and unabsorbed gas and vapor mixture to treatment with charging stock subsequently supplied to the cracking operation.

1,663,592. Process of and Apparatus for Recovering Paraffin. William A. Gruse, Wilkinsburg, and Warren F. Faragher, Pittsburgh, Pa., assignors to Gulf Refining Co., Pittsburgh, Pa., a corporation of Texas. Filed October 28, 1924. Serial No. 746,374. Three claims. (Cl. 196—20.)



1. In a continuous method of recovering hard paraffin wax from solidified slack wax, the process which comprises continuously conveying such a solidified wax through a body of water of adjusted temperature and during its progress repeatedly cutting the wax in such a manner as to expose all surfaces to the water and allow oil to separate therefrom and to rise through the water.

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NOTICE OF SALE OF ALL AND SINGULAR ASSETS OF THE AMERICAN REFINING COMPANY, Inc.

The undersigned as Receivers of the American Refining Company, Inc., will offer for sale and sell all of the assets of the American Refining Company, Inc., at public auction at the Court House door of Wichita County, Texas, at Wichita Falls, Texas, on the 5th day of May, A. D. 1928, beginning at 10:00 A. M. on said date.

Said properties consist of producing leases or royalties, real estate, a refinery of 6,000 barrels capacity, skimming plant, four Units Dubbs cracking system, two Units Cross cracking system, three hundred and forty-one tank cars, systems of filling stations, stocks of merchandise, bonds, notes, stocks in pipe line companies owned by the American Refining Company, Inc., all accounts receivable, choses in action, cash on hand, a full and complete schedule of which is on file at the Receivers office in room 513 City National Bank Building, Wichita Falls, Texas, and any prospective purchaser is at liberty to inspect said schedule of assets. The sale will be conducted at public auction and will be for cash, except as to real estate and producing leases, which real estate and producing leases may be sold on part credit, provided fifty percent of the purchase price thereof be paid in cash, and twenty-five percent one year after date and twenty-five percent in two years, the deferred payments to bear six percent interest per annum with a lien upon said property to secure same. Said sale will be subject to confirmation and approval of the court and five percent of the successful bid must be deposited with the Receivers on the date of sale.

Witness our hands this the 21 day of March, A. D. 1928.

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Receivers for
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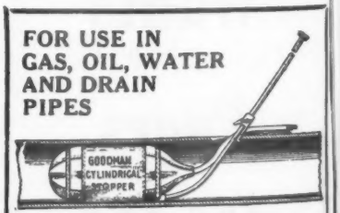

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Detailed Operations in All Fields for Month of March

SUMMARY OF ALL FIELDS
Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Eastern	267	1,451	24	53
Lima	11	214	1	1
Michigan	6	30	4	1
Indiana	13	143	5	3
Central Ohio	27	260	12	7
Kentucky	101	3,541	27	3
Tennessee	9	78	4	1
Illinois	8	116	1	1
Kansas	115	13,191	36	16
Oklahoma	288	37,562	86	50
Texas Panhandle	45	4,925	21	13
West Texas	99	285,981	28	3
North Central Texas	363	15,204	165	15
East Central Texas	5	125	4	0
East Texas	19	5	5	13
Arkansas	10	188	4	0
Louisiana	66	2,590	28	32
Gulf Coast	124	44,287	41	1
Southwest Texas	30	707	19	4
Wyoming	10	1,580	1	0
Montana	13	160	7	2
Colorado	11	1,604	6	0
New Mexico	6	85	3	1
Total March	1,646	414,027	532	220
To.al February	1,490	359,407	507	217
Difference	156	54,620	25	3

Summary of New Work

Field—	Rigs	Drig.	Total
Eastern	89	312	401
Lima	5	22	27
Michigan	6	21	27
Indiana	0	36	36
Central Ohio	26	58	84
Kentucky	6	164	170
Tennessee	0	15	15
Mississippi	2	18	20
Alabama	0	7	7
Florida	0	13	13
Illinois	2	16	18
Kansas	68	195	263
Oklahoma	151	655	806
Texas Panhandle	34	136	170
West Texas	109	313	422
North Central Texas	88	433	521
East Central Texas	0	8	8
East Texas	6	15	21
Arkansas	14	51	65
Louisiana	47	107	154
Gulf Coast	29	165	194
Southwest Texas	27	118	145
Wyoming	18	124	142
Montana	37	73	110
Colorado	16	81	97
Utah	2	29	31
New Mexico	14	86	100
Total March	796	3,271	4,067
Total February	744	3,272	4,016
Difference	52	1	51

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	9	804	3	0
Creek	21	2,270	4	1
Grady	24	682	5	13
Kay	22	30	9	12
Logan	3	2,433	0	0
Muskogee and Wagoner	25	607	14	5
Osage	41	10,950	10	3
Okfuskee	9	119	3	1
Okmulgee	15	141	5	4
Pawnee	7	23	2	2
Pontotoc	11	1,050	1	1
Pottawatomie	14	3,668	2	0
Seminole	34	11,540	11	2
Stephens and Cotton	13	1,531	4	1
Tulsa	10	736	3	0
Miscellaneous	25	928	11	5
Total March	288	37,562	86	50
Total February	280	51,955	114	42
Difference	8	14,393	28	8

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Carter	10	20	30
Creek	22	74	96
Garfield	9	9	9
Grady	7	17	24
Grant	1	12	13
Kay	3	22	25
Logan	2	23	25
Muskogee and Wagoner	14	32	46
Okfuskee	10	22	32
Okmulgee	9	34	43
Osage	9	34	43
Pawnee	1	8	9
Payne and Lincoln	1	16	17
Pontotoc	6	33	39
Pottawatomie	4	39	43
Seminole	34	110	144
Stephens and Cotton	12	47	59
Tulsa	0	18	18
Miscellaneous	6	85	91
Total March	151	655	806
Total February	148	653	801
Difference	3	2	5

WELLS COMPLETED
CARTER COUNTY

14-1s-3w Carter, Roxana Pet. 1 320
5-2s-2w Higgins, Coline Oil 6 ..... dry
10-4s-2w Walker, E. M. Boring 1 125
20-1s-3w Denny "B," Merrick-Camx Co. 2 110
29-1s-3w Spears, Humble O. & R. 3 ..... dry
27-2s-3w Fee, C. R. Smith 1-B 5
18-1s-2w Eason, Atlantic O. P. Co. 1 82
23-1s-3w Cudd, Magnolia Pet. 1 76
33-1s-3w Gillspie, Humble O. & R. 2 86

Wells completed 9
Production 804
Dry 2

CREEK COUNTY

14-17- 8 Freeman, Transcontinental Oil Co. 4 ..... dry
1-19- 9 Futrell, Hayden et al 1 45
18-19- 9 Sewell, Roxana Pet. 4 817
26-18-12 Crow, Pure Oil 12 ..... dry
36-16-10 Secrest, H. C. Wilson 1 20
18-14-10 Kimbie & Reading, Wilcox O. & G. Co. 1 46
Wolfe, Independent O. & G. 9. 305
13-18-11 G. Lee, Regal O. & G. 9 ..... dry
26-18-11 Townsite, Kennedy & Horner et al 1 60
12-17-10 Harris, Henry & Avers 2 20
18-14-10 Kimbie & Reading, Wilcox O. & G. Co. 2 260
24-18-11 Burnett, Kennedy & Horner et al 3 12
4-18-12 Hawkins, Devonian Oil 2 35
24-17- 9 Unallotted, Westland Oil 1 150
19-17-10 Dickson, Tidal Oil 6 25
21-17-10 9 Hendrickson, Jackson & Wise 4 45
13-16- 9 Sellers, Madden & Madden et al 1 160
18-14-10 Wolfe, Independent O. & G. 8. 260
Harjo, Mid-Continent Pet. 2.. dry
23-17-10 Coconanney, Young & Whitington 1-A 10
16-17-11 Broadnax, Thompson & Black 3 gas

Wells completed 21
Production 2270
Dry 4
Gas 1
Gas production 2,000,000

GRADY COUNTY

2-4-8w Dryden, Carter Oil 5 ..... gas
13-4-8w Glover, Commerce Dev. Co. 1.. gas
Glover, The Texas Co. 2 ..... gas
17-3-5w Woods, Wirt Franklin Oil et al 4 100
21-3-5w Carter-Kerans, Carter Oil 5 85
27-3-5w Poison, Carter Oil 1 95
34-3-5w Wham, Carter Oil 2 ..... dry
23-5-8w Farwell-Skervin, Magnolia Pet. 7 ..... gas
35-5-8w McCaughtry, Noble & Westerfelt 5 ..... gas
11-4-8w Williams, Magnolia Pet. 3 ..... gas
14-4-8w Pettit, Twin State Oil 1 ..... gas
17-3-5w Woods, Carter Oil 3 80
27-3-5w Pounds, Amerada Pet. et al 1 dry
26-5-8w Smith, Okla. Natl. Gas 4 ..... gas
1-4-7w Garden, Wirt Franklin Oil 1 .. gas
16-3-5w Wolford, Carter Oil 10 ..... dry
21-3-5w Cosette, Carter Oil 2 247
23-5-8w Farwell, Okla. Gas Utilities 5 gas
25-5-8w Hill, Hall & Briscoe 1-A Serrata, Okla. Gas Utilities 3 gas
35-5-8w McCaughtry, Little Nick Oil 5. gas
8-4-6w Pursley, Magnolia Pet. 1 ..... dry
16-3-5w Wolford, Carter Oil 9 ..... dry
28-3-5w Wilde, Joe Anderson 1-A 75

Wells completed 24
Production 682
Dry 5
Gas 13
Gas production 236,000,000

KAY COUNTY

12-28-1w Fulton, Royal O. & G. 1 ..... gas
2-27-1w Walker, Industrial O. & G. 1. gas
5-27-1w Fox, Dewey & Hoeffer 1 ..... dry
32-27-1w Ellidge, Rogers et al 1 ..... gas
5-27-1 Brazelton, Royal O. & G. 1 .... gas
36-29-1w School land, Kiowa O. & G. 5 gas
17-29-1 White, Marland Oil 3 20
18-29-1 Cole, Tidal Oil 2 ..... gas
30-29-1 Fulton, Harris & Haun 1 ..... dry
17-29-1w Austin, Harris & Haun 1 ..... dry
25-29-1w Tickel, Harris & Haun 1 ..... dry
Tickle, Harris & Haun 2 ..... dry
17-29-1 Dickerson, Marland O'l 3-A ... gas
36-28-1w Johnson, Ingram & Wilson 1.. gas
4-27-1 Bersche, Nehr & Wilson 1 ..... gas
17-29-1 Shimp, Carter Oil et al 7 ..... gas
35-28-1w Athey, Industrial O. & G. 1 .. gas
33-28-1 Kelle, Royal O. & G. 1 ..... gas
14-27-1w Wheeler, P. S. Wheeler 1 ..... dry
8-27-1 Courtner, Royal O. & G. 1 ..... dry
10-25-1 Anderson, Miller Bros. 1 ..... dry
30-27-1w Prairie O. & G. 2 ..... dry

Wells completed 22
Production 30
Dry 9
Gas 12
Gas production 33,583,000

LOGAN COUNTY

17-19-4w Freelove, Roxana Pet. 1 2306
16-18-4w Poston, Mid-Continent Pet. 1 25
McDaniels, Roxana Pet. 1 102

Wells completed 3
Production 2433

MUSKOGEE AND WAGONER COUNTIES

14-19-16 Thomas, R. F. Garland & Co. 2 dry
Thomas, R. F. Garland & Co. 3 dry
21-17-15 Dan W. McDougal 1 60
33-16-17 Butler, Wilson & Tillman 2 .... dry
8-15-15 Barnett, P. Boyle et al 4 180
18-14-17 James, W. A. Peterson 7 ..... gas
17-15-15 Thompson, J. A. Swindler 3 .... dry
2-14-18 Cherry, Holt & Ivey 1 10
6-14-19 Clark, Hale-Ford Oil 3 63
24-13-18 Bradshaw, Sioux Oil 1 ..... dry
30-18-15 Tiger, Bu-Vi-Bar Pet. 2-A 14
14-16-16 Lunnon, M. E. Johnson 4 ..... gas
9-15-15 Lowery, Bryan & Emery 1 ..... dry
9-15-18 Mackey, D. L. T. Oil 2 ..... gas
27-14-16 Marshall, Declus & Garrett 1 .. dry
4-13-19 Carver, W. R. Sommerville 2 .... dry
36-19-16 Kernal, Commercial Dev. Co. 1 dry
7-18-15 Pressley, Boyd & Hanks 2 .... dry
25-18-15 McKellop, A. E. Carder 4 ..... dry
1-18-17 Wilson, Sheldon Oil 1 ..... dry
23-16-16 Jameson, Peterson & Young 2 .. gas
18-17-16 McIntosh, O. A. Sewell et al 2 dry
10-15-15 Simmons, P. Boyle et al 2 ..... dry
34-15-18 Sanders, Tidal Oil 8 ..... gas
6-14-19 Bennett, J. F. Blackwood et al 1 280

Wells completed 25
Production 607
Dry 14
Gas 5
Gas production 14,250,000

OSAGE COUNTY

28-27- 6 Kewanee O. & G. 3 100
Kewanee O. & G. 7 1476
2-26- 6 Lewis Production Co. 3 1200
Lewis Production Co. 4 800
3-26- 6 Carter Oil Co. 5 1080
4-25- 6 Kay County Gas Co. 1 ..... dry
32-24- 9 Peters Pet. Corp. 2 15
17-23-10 Delmar Oil Co. 4 17
17-27- 6 Phillips Pet. Co. 6 30
Phillips Pet. Co. 6 225
28-27- 6 Kewanee O. & G. Co. 4 960
Kewanee O. & G. Co. 8 500
Kewanee O. & G. Co. 10 50
5-27-11 Osage Gas Producers 385 ..... gas
6-27-12 Wah-Sha-She Oil Co. 1 ..... dry
2-26- 6 Phillips Pet. Co. 1 757
3-26- 6 Carter Oil Co. 3 120
Carter Oil Co. 6 435
Galt Brown Oil Co. 2 ..... dry
25-26- 8 Petroleum Drlg. Co. 21 30
8-25- 7 L. T. I. Oil Co. 1 ..... dry
19-22-12 Winona Oil Co. 1 ..... dry
10-26- 6 Prairie O. & G. Co. 2 350
Prairie O. & G. Co. 1 40
17-27- 6 Peters Pet. Co. 9 150
28-27- 6 Gypsy Oil Co. 5 25
Gypsy Oil Co. 8 ..... dry
Gypsy Oil Co. 10 ..... dry
5-27-11 Hinge Gas Prod. Co. 386 ..... gas
2-26- 6 Phillips Pet. Co. 2 30
3-26- 6 Carter Oil Co. 1 1145
Carter Oil Co. 2 520
Carter Oil Co. 7 ..... dry
Kewanee O. & G. Co. 10 90
22-24- 7 Kay County Gas Co. 2-A ..... gas
20-23- 8 Marland Oil Co. 9 ..... dry
2-26- 6 Lewis Production Co. 5 700
27-25- 9 Marland Oil Co. 4 75
2-25-11 Standish Oil Co. 7 15
7-24- 9 A. G. Oliphant 1 15
1-21- 8 Osage Oil Synd. 1 ..... dry

Wells completed 41
Production 10950
Dry 10
Gas 3
Gas production 21,250,000

OKFUSKEE COUNTY

21-13- 9 Self, Laurel O. & G. et al 1 .... dry
22-12-11 Jacobs, Sheldon Oil et al 1 24
20-10- 9 Carolina, Barnsdall Oil 1 ..... gas
28-12-10 Johnson, Sands Pet. 1 30
22-10- 9 Simon, Fuhrman and Shaffer O. & R. 2 ..... dry
3-10-11 Scott, W. L. Umbrum 2 ..... dry
29-10- 9 Morris, Mid-Continent Pet. 1 25
36-10- 9 Palmer, Amerada Pet. 4 25
2-10-11 Tiger, W. L. Umbrum 1 15

Wells completed 9
Production 119
Dry 3
Gas 1
Gas production 44,000,000

OKMULGEE COUNTY

2-13-12 Skelton, T. A. Johnson & Co. 3 gas
6-15-13 Brooks, J. H. Rebold O. & G. 1 gas
9-15-14 Tucker, Independent O. & G. 1 gas
18-14-15 Rentie, C. T. Smith 10 6
22-16-12 Willis, Mid-Continent Pet. 2 25
22-15-11 Lee, G. D. Roberts 6 25
2-15-12 George, C. E. Campbell et al 2 dry
12-14-12 Lowe, Penrod & Thompson 1.. dry
9-14-14 Lowe, Riney & Williams 3 30
11-13-13 Gaither, C. Jennings 4 ..... dry
33-13-14 Sumsey, Geo. McClain et al 2 gas
22-16-12 Brown, Laurel O. & G. 1 25
10-15-14 Rowe, Jack Summers 2 30
4-12-14 Conner, Eagle-Picher Lead Co. 1 dry
27-11-13 Thompson, C. G. Buzzard et al 1 dry

Wells completed 15
Production 141
Dry 5
Gas 4
Gas production 35,750,000

PAWNEE COUNTY

9-22- 3 Arkeketa, Watchorn O. & G. 1 dry
8-20- 7 Hallett townsite, Turner et al 1 10
6-20- 8 Cotton, Black et al 4 ..... gas
30-20- 9 Woods, J. H. Turner and Pax Oil Co. 2 5
20-20-10 Ward, Sheridan Oil Co. 1 ..... gas
34-21- 8 Sharp, Moore et al 4 8
21-21- 8 Gilbert, Garber & Pulse et al 1-A ..... dry

Wells completed 7
Production 23
Dry 2
Gas 2
Gas production 4,500,000

PONTOTOC COUNTY

8-5-8 Milner, Max Westheimer 1 200
20-5-8 Perry, Louisiana O. R. Corp. 7.. 200
21-5-6 Cox, Conservative O. & G. 1.... dry
9-4-6 Balcrop, American O. & R. 7 .... gas
17-5-8 Harjo, Louisiana O. R. Corp. 8.. 15
18-5-8 Milner, W. R. Ramsey 4 150
8-5-8 Milner, Max Westheimer 1-A 25
9-5-8 Yoakum, C. B. Shafer 5 350
17-5-8 McCall, Homaokla Oil 5 20
McElroy, W. R. Ramsey 1 30
8-4-7 Nowbaby, J. C. Crosbie & Hicks 1 60

Wells completed 11
Production 1050
Dry 1
Gas 1
Gas production 8,000,000

POTTAWATOMIE COUNTY

14-7-4 Standridge, Independent and Darby 3 335
19-7-4 Neghnghuit, Continental Oil 1.. 475
20-7-4 Thompson, C. J. Wrightsman 1 .. dry
18-7-4 Light, Independent O. & G. 1... 130
19-7-4 Neghngult, Continental Oil 2.... 170
Phillips, Continental Oil 4 200
18-9-5 Foreman, Atlantic O. P. Co. 1.. 380
25-7-3 Sullivan, Gypsy Oil and Bu-Vi-Bar Pet. 1 165
Crawford, Magnolia Pet. 1 89
36-7-3 School land No. 77, Magnolia Pet. 1 1160
18-7-5 Hembree, Prairie O. & G. 1 60
14-7-4 Risenhoover, Magnolia Pet. 2 14
18-7-4 Long, McCullouch Oil 1 ..... dry
19-7-4 Cecil Gypsy Oil 2 490

Wells completed 14
Production 3668
Dry 2

SEMINOLE COUNTY

12- 9-5 Barker, Twin State Oil 5 70
13- 9-5 S. Davis, Carter Oil 2 685
13- 8-6 Davis, Magnolia Pet. 4 ..... dry
Davis, Magnolia Pet. 5 105
14- 8-6 Reed, The Texas Co. 13 240
15- 8-6 Bowlegs, Carter Oil 3-A 115
Goforth, I. T. I. Oil 8-B 270
36- 8-6 Fish, Carter Oil 7 630
Phoebe "B." I. T. I. Oil 4 172
Cosar, Sinclair O. & G. 2 980
34-10-6 Grayson, Mid-Continent Pet. 5 10
1- 9-5 Sango, Carter Oil 4 650
Sango, Gypsy Oil 5 1797
31- 8-6 Coker, T. B. Slick et al 1 ..... dry
10-10-5 Lumley, Prairie O. & G. 1 ..... dry
35- 8-6 Pattey, W. B. Pine and Phillips Pet. 2 ..... dry
10- 8-6 Harjoche, Gypsy Oil 2 3012
Hammond, Magnolia Pet. 3 431
Strothers "P", Pure Oil 4 325
11- 8-6 Ellen, Sinclair O. & G. 6-A 168
13- 8-6 Henderson, Gypsy Oil 1 ..... gas
36- 8-6 Cosar, Continental Oil 3 620
31- 8-7 Dixon, Magnolia Pet. 1 64
7- 5-8 Hulwa, Louisiana O. R. Corp. 2 dry
8- 5-8 Hulwa, Louisiana O. R. Corp. 1 dry
22- 8-8 Garman, Prairie O. & G. 1.... dry
15-10-8 Eppiy, Snowden & McSweeney 2 dry
1- 9-5 Sango, Barnsdall Oil 5 ..... dry
10- 9-8 Brinsfield, The Texas Co. 1 .. gas
10- 8-6 Harjoche, Tidal Oil 8 ..... dry
12- 8-6 Rhoades, Magnolia Pet. 3 255
35- 8-6 Pattey, Magnolia Pet. 4 300
7- 8-7 R. Smith, Carter Oil 1 ..... dry
7- 8-8 Fleet, Mid-Continent Pet. 2 735

Wells completed 34
Production 11,540
Dry 1
Gas 2
Gas production 4,500,000

STEPHENS AND COTTON COUNTIES

34-1s-8w Nigh, Snodgrass et al 1 250
3-2s-8w Allen, Geo. Pace et al 1 ..... dry
13-1s-4w Krebs, Skelly Oil 4 765
20-1s-8w D. Bartley, Magnolia Pet. 2.. 20
27-1s-8w Wilkinson, Pearce & Brown 7 40
34-1s-8w Burk, Hupp & Duff 3 75
23-1s-5w Swanson, Mudge Oil 2 9
Swanson, Mudge Oil 3 5
2- 1-5w Duke, Magnolia Pet. 1 10
34-1s-8w Fee, McAlester et al 2 5
35-1s-8w Hanson, Four in One Oil 1 .... dry
11-2s-8w Wade, Beard & Cobb 2 10
11-2s-8w Wade, Beard & Cobb 3 50
3-2s-5w Webb, Magnolia Pet. 4 ..... dry
27-1s-8w Taliaferro, Big 12 Oil 5 40
13-1s-4w M. Green, Magnolia Pet. 2 .... gas
12-2s-8w Fobb "B," Murphy Oil 11 .... dry
7-2s-7w Bond, American P. L. Co. 1.. 302

Wells completed 18
Production 1501
Dry 4
Gas 1
Gas production 46,000,000

TULSA COUNTY

6-19-10 McKee, Superior Oil 9 151
Futrell, Hayden et al 3 50
15-19-11 Riverbed, Glidden Oil 1 450
6-17-13 Oswalt, Black et al 1-A ..... dry
6-19-10 McKee, Superior Oil 10 55
15-19-11 Johnson, Glidden Oil 1-A ..... dry
Fife, Minshall et al 5 20
18-19-12 Hawkins, Caldwell & Page 1. dry
21-19-12 Warner, Jackson & Wise 1-A .. 5
3-16-12 Funk, Berry et al 3 6

Wells completed 10
Production 736
Dry 3

MISCELLANEOUS COUNTIES
Garfield County—

18-22-3w Hartley, Sinclair O. & G. 19.. dry
24-24-3w Disney, Marland Oil 1 ..... dry

Rogers County—

10-21-16 Draper, Lou Riggs 1 ..... dry
9-21-17 Wilson Bros., Weber & Qualls et al 1 20
Williams, Mrs. Lee F. Ross et al 2 75

Nowata County—

4-25-17 Woodard, Freeden Bros. 1 10
Woodard, Freeden Bros. 2 3
28-26-17 Serandine, C. Anderson 2 25
11-26-15 Woolver, Baxter & Jacobs 1.. dry

McIntosh County—

3-12-14 Porter, J. Aggas 5 ..... gas

Hughes County—

21-7- 8 Street, Jarvis & Holm 1 115
19-8-10 Alexander, Carter Oil 6 ..... dry

Beckham County—

29-9-23w Baggett, Magnolia Pet. 1.... gas

Garvin County—

15-1-3w Ringer, Magnolia Pet. 2 ..... dry

Payne County—

24-18-5 Peters, Olean Pet. 1 ..... dry
7-18-4 Varley, Pure Oil 1 45
15-19-5 Fern O. & G. Co. et al 1 dry

Grant County—

14-27-3w Howell, Argo Oil 2 ..... gas
23-27-3w Crouch, Blackwell O. & G. 3 .. dry
15-27-3w Swaggart, Argo Oil 1 575

Sequoyah County—

33-12-27 Greenstreet, Citizens Gas Co. 1 gas

Caddo County—

5-5-9w Cutshall, Caddo Oil 2 60

Washington County—

13-29-12 Fee, G. W. Connelly Oil 1 .... dry
18-28-13 Metcalf, B. & B. Waite Dr. Co. 3 ..... gas
32-28-13 Parker, M. D. Tyler 6 ..... dry

Wells completed 25
Production 928
Dry 11
Gas 5
Gas production 34,500,000

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	11	980	7	0
Cowley	13	250	3	7
Chautauqua and Elk	7	80	2	3
Greenwood	25	2,047	10	2
Marion	17	1,920	2	0
Sumner	14	6,675	2	1
Miscellaneous	27	1,239	10	3
Total March	115	13,191	36	16
Total February	94	10,615	34	10
Difference	21	2,576	2	6

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Butler	8	7	15
Chautauqua and Elk	6	10	16
Cowley	3	29	32
Greenwood	14	23	37
Marion	5	22	27
Russell	4	12	16
Sumner	11	38	49
Miscellaneous	17	54	71
Total March	68	195	263
Total February	66	205	271
Difference	2	10	8

WELLS COMPLETED
BUTLER COUNTY

24-25- 4 Hulbert, Pappas et al 1 ..... dry
3-27- 6 Lewis, Davis et al 4 140
4-27- 6 Shaffer, Rosenthal et al 10 .. 100
9-27- 6 McGinnis, Allison & Fitzwilliams 4 300
4-28- 7 Semich "B", Empire O. & R. 1 dry
22-27- 5 Sterling, Empire O. & R. 1 540

21-27- 6 Henry, Blasklee & Wentz 1... dry
31-26- 8 Drum-Bitler, Federal Oil 12.. dry
4-27- 6 Sluss, LaRobb Oil et al 1..... dry
13-28- 5 Hedderman, Empire O. & R. 1 dry
26-28- 6 Tavender "A," Basom et al 1. dry

Wells completed 11
Production 980
Dry 7

COWLEY COUNTY

3-30- 4 Bush, Smith & Ash 1..... dry
31-31- 6 Saunders, Skelly Oil 1..... 100
15-32- 4 School land, Marland Oil 2... gas
24-33- 6 Dobson, Kentucky N. & O. 3. gas
35-34- 3 Koestler, Brady et al 1..... dry
15-32- 4 Swenson, Independent O. & G. et al 1 ..... gas
22-32- 4 Mattison, McNabb et al 1.... gas
33-33- 6 Esch, Watchorn O. & G. 1.... gas
17-35- 3 Vickory, Harris & Haun 1... gas
18-35- 3 Bordan, Harris & Haun 1.... gas
19-34- 3 Martin, Roxana Pet. 1..... dry
7-33- 3 Roberts, Barnsdall Oil 1..... 150
4-34- 6 Esch, Watchorn O. & G. 1.... dry

Wells completed 13
Production 250
Dry 3
Gas 7
Gas production 20,000,000

CHAUTAUQUA AND ELK COUNTIES

4-30- 9 Denton, Denton et al 16..... 75
14-31-10 Webb, Union Gas Corp. 23.... gas
36-31-10 Warren, Denman Bros. 2..... gas
30-30-11 Beatty, Winemiller et al 1.... dry
32-34-12 Osborn, Lodowici Celadon Co. 1 dry
2-32-10 Julian, Griffin et al 1..... gas
14-33-12 Morton, Denman Bros. 2..... 5

Wells completed 7
Production 80
Dry 2
Gas 3
Gas production 875,000

GREENWOOD COUNTY

25-22-12 Schwab, Empire O. & R. 5.... dry
Schwab, Empire O. & R. 8.... 75
30-22-13 Schwab, Darby Pet. 6..... 350
4-24-11 Smith, Powell et al 1..... dry
6-25- 9 Wilkerson, Lassen et al 3.... 100
15-25-13 Kolb, Empire O. & R. 2..... 50
30-22-13 Schwab, Darby Pet. 7..... 200
Schwab, Darby Pet. 8..... 200
Schwab, Empire O. & R. 1.. 80
14-23- 9 Green, Murphy et al 6..... dry
15-26-11 Butler, Hood et al 1 ..... gas
20-26-12 McNair, Smith & Rockhill 1... dry
8-27-11 Wagner, Rogers et al 1..... dry
23-22-11 Duby, Empire O. & R. 19..... 200
26-22-12 Ott "C," Empire O. & R. 3... 200
3-22-10 Pixlee, Skelly Oil et al 2.... 100
4-22-10 Pixlee, Ritchey & Moore 1... dry
28-22-11 Spencer, Schwartz et al 1.... dry
23-22-12 Fankhouser, Theta Oil 6..... 125
25-22-12 Schwab, Empire O. & R. 10... dry
30-22-13 Schwab, Darby Pet. 9..... 300
33-22-13 Leu, Superior Oil 1 ..... dry
4-24-13 Smith, Carnes & Bly 1..... dry
36-25-10 May, Pelhamus et al 1..... 35
9-25-13 Burton, Gilliland Oil and Cross 1 32
22-26-11 Bradford, Devine et al 1..... gas

Wells completed 26
Production 2047
Dry 10
Gas 2
Gas production 4,250,000

MARION COUNTY

22-17- 4 Smith, Braden, McClure et al 1 50
22-17- 4 Bolby, Ramsey et al 1..... 400
23-17- 4 Peterson, Phillips Pet. 1..... 200
1-18- 4 Hartke, Prairie O. & G. 1..... dry
21-17- 4 Bevens, Independent O. & G. 1 80
23-17- 4 Fowler, Larlaux et al 1..... 150
Merllatt, Larlaux et al 1.... 200
15-17- 4 Mosier, Harris & Winters 1 dry
22-17- 4 McCoy, Phillips Pet. 1..... 230
15-17- 4 Frank, Phillips Pet. 1..... 25
22-17- 4 Barnes, Larlaux et al 1..... 80
Shoupe, Larlaux et al 1..... 65
Raznicek, Phillips Pet. 2..... 35
Layton, Ward et al 1..... 75
23-17- 4 Peterson, Phillips Pet. 3..... 40
Nettrourer, Reynolds et al 1.. 90
22-17- 4 Reznicek, Prairie O. & G. 1... 190

Wells completed 17
Production 1920
Dry 2

SUMNER COUNTY

14-32- 2 Emerich, Roxana Pet. 4-A..... 35
23-32- 2 Wenrich, Palmer and Barnsdall Oil 2 700
14-34- 2 Tamsh, Harris & Haun 1..... gas
24-31- 2 Shore, Roxana Pet. 5..... 125
36-31- 2 Riverbed, Roxana Pet. 9..... 525
14-32- 2 Emerich, Roxana Pet. 9 30
Emerich, Roxana Pet. 10..... 500
Rothwell, Roxana Pet. 2..... 1440
Gassoway, Wasson et al 4..... 680
Gassoway, Wasson et al 5..... 650
Gassoway, Wasson et al 6..... 1975
23-32- 2 Barnes, Smith & Ash 1..... dry
26-30-2w Bussard, Washahoma Oil 1... dry
14-32- 2 Fritz, Roxana Pet. 1-A..... 15

Wells completed 14
Production 6675
Dry 2
Gas 1
Gas production 9,000,000

MISCELLANEOUS COUNTIES

Dickinson County—
35-16-4 Uteck, Harwood & Winters 1.. dry

Coffey County—
23-22-13 Reed, Bruce, Bradley et al 1.. dry
Empfinger, McCulloch Oil 1..... 15

Lyon County—
14-21-10 Schroeder, Hawk et al 1..... dry

Bourbon County—
23-24-21 Hammond, Harris et al 1..... dry

McPherson County—
31-18-2w Anderson, McPherson O. & G. 1 ..... gas
32-18-2w Chinberg, Tatlock et al 1.... gas

Allen County—
33-24-21 Johnson, O.K.O. O. & G. Co. 29 3

Anderson County—
3-22-19 Buchanan, Welda Pet. 1..... 25
15-22-19 Rhodes, Jack Griffith 1..... dry
3-22-19 Buchanan, Welda Pet. 2..... 40
14-21-20 Ewing, American Cont. Oil 38 26
4-21-20 Washburn College, Schermerhorn Oil 3 58

Franklin County—
21-15-21 Collins, W. W. Rubel et al 1.. dry

Rooks County—
28-10-16w Mattison, Streeter & Stearns 1 dry

Russell County—
33-13-15w Mermis, Streeter & Stearns 1 1000

Shawnee County—
21-12-14 Shirley, McBride & Goens 1... dry

Montgomery County—
9-32-17 Hileman, Oakleaf Oil and Perry 2 3
25-31-16 Givens, Century O. & G. 1.... 15
15-34-15 Indep. Torpedo Co., L. E. Conn et al 20 ..... gas
7-34-14 Haag, Carter Oil 11..... dry
2-34-13 Dunham, J. P. Brady 8..... 5
17-33-15 Schonberg, Henderson Oil 6.. 3
13-33-14 Stocker, Central Oil 1..... 40
32-33-14 Mitchell, Amherst Oil 28..... dry
17-33-15 Bryan, Henderson Oil 6..... 1
2-34-13 Partridge, Paul E. Clements 3 5

Wells completed 27
Production 1239
Dry 10
Gas 3
Gas production 27,300,000

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Limestone	2	125	1	0	0	3	3
Kaufman	3	0	1	0	0	0	0
Smith	1	0	1	0	0	2	2
Freestone	1	0	1	0	0	0	0
Anderson	0	0	0	0	0	1	1
Navarro	0	0	0	0	0	2	2
Total March	5	125	4	0	0	8	8
Total Feb.	7	85	5	0	2	8	10
Difference	2	40	1	0	2	0	2

COMPLETED WELLS
LIMESTONE COUNTY

Ward, Transcontinental 2 152
Williams, Hunt et al 1 ..... dry

KAUFMAN COUNTY

McMasters, Barney Carter 1 ..... dry
SMITH COUNTY
Hoovenberg & Anderson, Humble 1 .... abd
FREESTONE COUNTY
Boyd, Alexander & Lyles 1 ..... abd

Wells completed 5
Production 125
Dry 4

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Mirando	14	230	10	1	6	23	29
Luling	0	0	0	0	1	4	5
Dale	3	402	0	0	0	2	2
Kingsville	1	75	0	0	1	2	3
Refugio	1	0	0	1	3	7	10
Adams	0	0	0	0	0	1	1
White Point	1	0	1	0	5	4	9
Miscellaneous	10	0	8	2	11	75	88
Total March	30	707	19	4	27	118	145
Total Feb.	55	431	30	17	17	123	140
Difference	25	276	11	13	10	5	5

WELLS COMPLETED
COLE FIELD—DUVAL

Houston Oil (Syn) R-6 ..... gas
DRISCOLL POOL
R. Driscoll 9 (fee) ..... abd
PIEDRAS PINTAS
Humble Oil & Refining 7 ..... abd
HENNE, WINCH & FARISS—JIM HOGG
Edwards St. Albans 9 ..... abd
RANDADO FIELD
Johnson and others 24 ..... abd
Magnolia Petroleum 25 20
Wildcats
Holden and others 3 ..... abd
COLE—WEBB
Cole Petroleum 52 100
Cole Petroleum 53 100
Houston Oil (Humble) 2 ..... abd
AVIATOR OR BRUNI TRACTS
Livingston and others 1 ..... abd
REISER POOL
W. O. Wheatley 3 ..... abd
CAROLINA—TEXAS
Houston Oil 38 ..... abd
LEASEHOLDERS
J. H. Winch 1 ..... abd

Wells completed 14
Gasers completed 1
Oil wells completed 3
Dry and abandoned 10
Oil production 230
Gas production 40,000,000
SOMERSET FIELD
Schimmel Petroleum, Koehler 16 12
Schimmel Petroleum, Koehler 17 12
Schimmel Petroleum, Koehler 18 10
Schimmel Petroleum, Koehler 19 12
Schimmel Petroleum, Koehler 20 10
Schimmel Petroleum, Koehler 21 11
Schimmel Petroleum, Koehler 22 10
Schimmel Petroleum, Koehler 23 11

Wells completed 8
Oil production 88
DALE FIELD
The Texas Company, J. Moore 1 150
The Texas Company, Clingensmith 8 .. 52
The Texas Company, Osteen 3 200

Wells completed 3
Oil production 402
KINGSVILLE FIELD
Humble Oil & Refining, Dennett B-3 .. 75
REFUGIO GAS FIELD
Houston Oil, Rooke 1 ..... gas
WHITE POINT GAS FIELD
Houston Oil, Ragsdale 2 ..... abd
MISCELLANEOUS
Bexas County—
Witherspoon Oil, Fecel 2 ..... abd
Bastrop County—
Mrs. McMurtray, Duran 1 ..... abd
Caldwell County—
H. C. Ratcliffe, New 1 ..... abd
J. E. Latson, Gomillion 1 ..... abd
Dimmitt County—
Humble Oil & Ref., City Nat'l Bank 1.. abd
Gonzales County—
Gonza Petroleum, Elder 1 ..... abd
Green & Shall, Dubose 2 ..... abd
Guadalupe County—
O. W. Killam, Calvert 1 ..... abd
Hidalgo County—
Queen City Oil & Gas, Adams 1 ..... abd
Lee County—
Allen Creek Oil Co., Henderson 1 ..... abd
Medina County—
Chacon Oil, Jungman 2 ..... abd
San Patricio County—
Ed Leach, Collins 2 ..... gas
Travis County—
Cranfill & Reynolds and Smith & Clark, Schreiver 1 ..... abd
Zavala County—
Witherspoon Oil, West 1 ..... gas

Wells completed 10
Dry and abandoned 18
Gassers completed 2
Gas production 44,000,000

WEST TEXAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Andrews	3	0	3	0
Concho	1	0	1	0
Crane	6	310	3	0
Crockett	1	0	1	0
Culberson	3	0	3	0
Howard	16	10,642	2	1
Jones	1	45	0	0
Loving	1	0	1	0
Pecos	26	165,667	8	0
Reagan	1	185	0	0
Reeves	1	0	1	0
Runnels	1	137	0	0
Schleicher	1	0	1	0
Taylor	3	0	3	0
Tom Green	1	0	1	0
Winkler	34	109.595	1	2
Total March	99	285,981	28	3
Total February	102	222,851	25	2
Difference	3	63,130	3	1

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	S.D.	Ttl.
Crane	2	5	1	8
Crockett	6	6	5	17
Howard	8	22	3	33
Jones	3	4	2	9
Mitchell	0	3	2	5
Pecos	29	25	8	62
Reagan	2	13	11	26
Runnels	4	10	4	18
Upton	3	3	3	9
Winkler	34	92	11	143
Miscellaneous counties	19	37	37	93
Total March	109	226	87	422
Total February	118	213	97	428
Difference	9	13	10	6

WELLS COMPLETED
ANDREWS COUNTY

Ratliff & Bedford, Calvin & Belt 1.... dry
Ratliff & Bedford, J. S. Means 1..... dry
J. S. Means, B. B. McKennon 1 ..... dry

Dry completions 3
CONCHO COUNTY
Schultz, Parks & Lawson 1 ..... dry
CRANE COUNTY
J. T. McElroy, Gulf Prod. Co. 47..... 135
State-Lasseter, Gulf Prod. Co. 11..... 160
State-Lasseter, Prairie O. & G. Co. 6.. 75
W. N. Waddell, Gulf Prod. Co. 3..... dry
State Bank Commission, J. K. Hughes Dev. Co. 1 ..... dry
J. R. Mosley, Crane Development Co. 1 dry

Completions 6
Production 310
Dry 2
Abandoned location 1
CROCKETT COUNTY
Todd, James Kelley and others 1..... dry
CULBERSON COUNTY
Radford, Jas. H. Gardner and others 1 dry
J. P. Seay, Deep Rock Oil Co. ..... dry
HOWARD COUNTY
Dora Roberts, F. H. E. Oil Co. 1..... 300
Dora Roberts, Lockhart & Co. 1..... 2400
Dora Roberts, Schermerhorn Oil Co. 1.. 4008
Dora Roberts, Coyle-Concord Oil Co. 4.. 50
Dora Roberts, Magnolia Pet. Co. 2 2952
H. R. Clay, Merrick & Lamb 3..... 30
Dora Roberts, F. H. E. Oil Co. 2-B.... 30
Dora Roberts, F. H. E. Oil Co. 2-D.... 40
Clay-E. Marland Oil Co. 1 65
Dora Roberts, Owen & Sloan 3..... 72
H. R. Clay, Henry Zweifel 2 30
Roberts-E. F. H. E. Oil Co. 1 20
Kelly Chalk, Magnolia Pet. Co. 10 45
Dora Roberts, Oeland & McCaldin 1.... gas
A. Richardson, Marland Oil Co. 1..... dry
A. J. Hooks, Bristow & Merrick 5..... dry

Completions 16
Production 10,042
Gas production 1,500,000
Abandoned locations 1
Dry 1
JONES COUNTY
Smith, Hutson & Weaver 1-A 45
LOVING COUNTY
Fee, Lockhart Bros. 1 ..... dry
PECOS COUNTY
Mrs. M. A. Smith, Humble O. & R. Co. 4-B 2088
Smith, Taylor, Mid-Kansas and Transcontinental 7 7728
Yates-B, Mid-Kansas and Transcontinental 10 15,240
Yates-B, Mid-Kansas and Transcontinental 21 6672
I. G. Yates, California Oil Co. 13..... 21,864
M. A. Smith-A, Gulf Prod. Co. 8..... 7200
I. G. Yates-A, Mid-Kansas and Transcontinental 19 7760
M. A. Smith, California Oil Co., Lease 3 11 9600
I. G. Yates-B, Mid-Kansas and Transcontinen al 12 14,448
Smith-Taylor, Mid-Kansas and Transcontinental 10 11,280
Smith-Taylor, Mid-Kansas and Transcontinental 11 10,080
Smith-Taylor, Mid-Kansas and Transcontinental 12 12,432
Yates-A, Mid-Kansas and Transcontinental 15 22,176
Yates-A, Mid-Kansas and Transcontinental 16 9000
Yates-F, Mid-Kansas and Transcontinental 1 7848
River Bed, Pandem & Gibson 8 50
River Bed, Pandem & Gibson 12 25
Mrs. M. A. Smith, Phillips Pet. Co. 1.. 176
M. A. Smith, Mazda and Savoy Oil Co. 3 dry
B. T. Corder, Moody Oil Corp. 1..... dry
Bennett, Quinby Oil Co. 2 ..... dry
A. A. Gray, Quinby Oil Co. 1 ..... dry
Townsite, Quinby Oil Co. and others 1.. dry
Blackstone & Slaughter, Transcontinental 1 .. & ..... dry
H. T. Corder, Geo. A. Henshaw et al 1 dry
Yates, Day Bros., and McKnights 1.... dry

Completions 26
Production 166,667
Dry 7
Abandoned locations 1
REAGAN COUNTY
University, Big Lake Oil Co. 68..... 185
REEVES COUNTY
Biggs, World Oil Co. 1 ..... dry
RUNNELS COUNTY
R. M. McMillan, Vacuum and Ladd 2. 137
SCHLEICHER COUNTY
Ball Robinson, Thos. Grey and others 1 dry
TAYLOR COUNTY
Hensiee, Brown Prod. Co. 1 ..... dry
Lattimer, Owen & Sloan 1 ..... dry
C. M. Brown, Gilbert Johnson and Day Bros. 1 ..... dry

Completions 3
Dry 3
TOM GREEN COUNTY
J. W. Johnson, Marland Oil Co. 1..... dry
WINKLER COUNTY
Grisham-Hunter, Independent O. & G. 5 5000
Grisham-Hunter, Independent O. & G. 6 4700
Vardeman-B, Independent O. & G. 2.. 8640
Grisham-Hunter-B, Republic Prod. 2.. 95
Ida Hendrick-B, Roxana Pet. Corp. 2..1200
Ida Hendrick-C, Roxana Pet. Corp. 5..1200
Grisham-Hunter-D, Roxana Pet. Corp. 2 4818
Ida Hendrick, Southern C. O. P. Co. 5 T-88-C 300
Ida Hendrick, Turman & Maxwell 7... 2000
Grisham-Hunter-A, Atlantic O. P. Co. 3 960
Grisham-Hunter-A, Atlantic O. P. Co. 4 1680
Ida Hendrick-A, Landreth and Roxana 1 5568
Grisham-Hunter-A, Roxana Pet. 2..... 16,800
Hendrick-B, Pure Oil Co. 2 1262
Hendrick-B, Pure Oil Co. 3 750
Ida Hendrick, Atlantic O. P. Co. 1.... 180
Hendrick-F, Atlantic and Collett 1.... 3130
Hendrick-C, Cranfill & Reynolds 1....11,600
Hendrick, Southern C. O. P. Co. 2 T-88-B 3760
Hendrick, Southern C. O. P. Co. 1 T-88-I 1515
Grisham-Hunter-B, Texon O. & L. Co. 1 6875
Grisham-Hunter-B, Texon O. & L. Co. 2 3725
Grisham-Hunter, Humble O. & R. Co. 6 6000
Grisham-Hunter-B, Roxana Pet. Corp. 3 2000
Hendrick, Southern C. O. P. Co. 1 T-88-H 2712
Grisham-Hunter-B, Murchison & Cranfill 4 100
Hendrick, Pure Oil Co. 2 3500
Hendrick, Southern C. O. P. So. 3 T-67-F 1100
Hendrick, Southern C. O. P. Co. 4 T-67-F 850
Hendrick-B, Texon O. & L. Co. 1..... 6875
Hendrick, Turman & Maxwell 4..... 700
Grisham-Hunter, Southern C. O. P. Co. 2 3-T-68-A ..... gas
Hendrick-B, Pure Oil Co. ..... gas
Grisham-Hunter, Southern C. O. P. Co. 1 T-89-A ..... dry

Completions 34
Production 109.595
Gas production 125,000,000
Dry 1

TEXAS PANHANDLE FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Bailey	3	0	3	0
Carson	1	0	0	1
Gray	17	4,265	5	4
Hale	1	0	1	0
Hartley	1	0	1	0
Hutchinson	4	660	1	3
Lipscomb	4	0	4	0
Ochiltree	4	0	4	0
Randall	1	0	1	0
Sherman	1	0	1	0
Wheeler	8	0	1	7
Total March	45	4,925	21	13
Total February	36	3,214	1	4
Difference	19	4,289	20	9

County—	Rigs	Drg.	S.D.	Ttl.
Carson	2	6	0	8
Gray	16	55	8	79
Hutchinson	8	10	4	22
Wheeler County	3	8	2	13
Miscellaneous counties	5	16	27	48
Total March	34	95	41	170
Total February	26	58	45	169
Difference	8	3	4	1

WELLS COMPLETED
BAILEY COUNTY

W. H. Fuqua, Humble O. & R. Co. 1... dry
Webb Miller, Gibson Oil and others 1. dry

Completions 2
Dry 2
CARSON COUNTY
C. R. Garner, The Texas Company 2.. gas
The Texas Company, fee, Empire G. & F. Co. 1-A ..... gas

Completions 2
Gas production 86,000,000
GRAY COUNTY
W. Jackson, Phillips Pet. Co. 1..... 30
W. Jackson, Phillips Pet. Co. 2..... 100
Jackson-Riley, Phillips Pet. Co. 1.... 125
W. Jackson, Delaney 6 2000
W. Jackson, Phillips Pet. Co. 3..... 200
H. M. Johns, Phillips Pet. Co. 1..... 10
Bender, Empire G. & F. Co. 1 275
L. Holmes, Midwest Exploration Co. 1. 1595
Jackson-Riley, Phillips Pet. Co. 2..... gas
A. Barrett, Empire G. & F. Co. 1..... gas
C. B. Bell, Empire G. & F. Co. 1..... gas
J. B. Bowers, The Texas Company 2... gas
A. Chapman, Neudegate and others 1.. dry
J. B. Bowers, Phillips Pet. Co. 1 ..... dry
B. E. McKenney, Remo Oil Coo. ..... dry
C. W. Bradford, Bay Shore Co. 1..... dry
W. Jackson, Delaney and others 3..... dry

Completions 17
Production 4285
Gas production 92,000,000
Abandoned locations 1
HALE COUNTY
Kiteral, Tolbert & Simms 1 ..... dry
HARTLEY COUNTY
Francis Farwell, J. E. McKanna 1.... dry
HUTCHINSON COUNTY
E. Cockrell, Navajo Oil Co. 1 10

J. M. Sanford, Antelope Crude Oil Co. 2 600
Cockrell, The Texas Company 1 50
Albert Yake, McMan Oil & Gas Co. 1.. dry

Completions 4
Production 660
Dry 1

LIPSCOMB COUNTY

Bradford, Cal-Texas Co. 1 ..... dry
Mrs. H. D. May, Camp Creek Oil Co. 1. dry
Frass, Ozark Drilling Co. 1 ..... dry
C. W. Jones, Smi.h, Kinsley & Ruby 1.. dry

Dry completions 4

OCHILTREE COUNTY

H. E. Wamble, Hamilton and others 1. dry
R. H. Moore, McCorkle Pipe Line Co. 1. dry
Weinett, Montgomery 1 ..... dry
Bowen, Standard Dev. Co. 1 ..... dry

Dry completions 4

RANDALL COUNTY

J. Beckman, Westbrook Oil Co. 1..... dry

SHERMAN COUNTY

Price & Fuqua, Phillips Petroleum and Prairie 1 ..... dry

WHEELER COUNTY

J. F. Coates, Mid-Kansas O. & G. Co. 1. gas
C. A. Linkey, Woodtes Oil Co. 2 ..... gas
Fee, Hatcher and others 2 ..... gas
J. L. Newton, Mid-Kansas O. & G. Co. 1 gas
D. Morgan, The Texas Company 2 .... gas
Smock, Rook & Angus 1 ..... gas
G. Krc, Sun Oil Co. 1 ..... gas
M. Ackley, Vaughan and others 1..... dry

Completions 8
Gas production 232,500,000
Abandoned loca.ion 1

NORTH CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	53	2,563	23	0
Brown	74	5,057	33	3
Callahan	10	3	9	0
Clay	1	0	1	0
Coleman	13	220	8	2
Cooke	6	15	4	0
Eastland	20	165	11	3
Foard	2	9	1	1
Grayson	1	0	1	0
Haskell	1	0	1	0
Jack	6	115	4	0
Montague	20	592	2	3
Palo Pinto	8	40	6	1
Shackelford	11	1,084	5	0
Stephens	6	95	1	1
Wichita	56	852	26	0
Wilbarger	24	1,500	6	1
Young	51	2,903	23	0
Total March 363		15,204	185	15
Total February 260		11,289	108	9
Difference 103		3,915	57	6

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	S.D.	Ttl.
Archer	11	26	2	40
Brown	8	58	8	74
Callahan	10	11	6	27
Coleman	9	36	22	67
Cooke	3	2	5	10
Eastland	3	29	2	34
Jack	1	9	7	17
Montague	4	6	3	13
Palo Pin o	1	1	4	6
Shackelford	2	17	5	24
Stephens	0	17	7	24
Throckmorton	1	1	0	2
Wichita	7	21	2	30
Wilbarger	17	32	8	57
Young	10	30	19	59
Miscellaneous counties	1	10	26	37
Total March	88	306	127	521
Total February	70	275	138	473
Difference	18	31	1	48
Grand total N. Central and W. Texas, Mar.	197	532	214	943
Grand total N. Central and W. Texas, Feb.	188	488	225	901
Difference	9	44	11	42

WICHITA FALLS DISTRICT COMPLETIONS

ARCHER COUNTY

Wilson-A, Fain-McGaha Oil Corp. 1..... 120
Wilson-A, D. O. Johnson and others 1... 115
Benson, Atlantic O. Prod. Co. and Rose 1 2
Wilson, Burns and Humble O. & R. Co. 1 86
Wilson, Gohlke and others 3..... 65
Garvey, The Texas Company 1 26
Wilson-A, Fain-McGaha Oil Corp. 2..... 90
Wilson-A, Fain-McGaha Oil Corp. 3..... 110
Wilson-B, D. O. Johnson and others 1... 155
Parrish, Kruger and others 1..... 147
Wilson, Burns and Humble O. & R. Co. 2 61
Fennell, R. P. Dorran 1 12
Wilson-A, Fain-McGaha Oil Corp. 4..... 40
Wilson-C, Fain-McGaha Oil Corp. and Humble 2 360
Wilson-C, Fain-McGaha Oil Corp. and Humble 1 60
Wilson-B, Fain-McGaha and United Producers Co. 60
Wilson-B, Fain-McGaha and United Producers Co. 2 168
Wilson-B, Fain-McGaha and United Producers Co. 3 288
Parrish, Gardner, Wilson and McCaldin 2 100
Jones & Warren, F. H. Gohlke and others 1 40
Parrish, F. H. Gohlke and others 1..... 74
Taylor, F. H. Gohlke and others 1 116
Wilson-A, D. O. Johnson 2 8
Perkins, United Producers Co. 4..... 25
Ward, Marland and Consolidated Oil 6.. 18
Garvey, Panhandle Oil & Ref. 1 17
Wilson, Burns and Humble O. & R. Co. 3 12
Fennell, R. P. Dorran 2 6
Wilson-A, D. O. Johnson 3 80
Wilson-B, D. O. Johnson 2 172
Parker, Burleson && Chenault 1 ..... dry
Kinder, Consolidated Oil Co. 1..... dry
Birdwell, Gwynn and Humble O. & R. Co. 1 ..... dry
Farmer, Panhandle & Grisham 1 ..... dry
Peeler, Panhandle & Hives 1 ..... dry
Cowan-G, The Texas Company 1 ..... dry
Burns, Birdwell Oil Co. 2 ..... dry
Anderson, Cullam and others 1 ..... dry
Bearden, Madden & Hunt 1..... dry
Campbell, Mid-Kansas Oil & Gas 1..... dry
Netherton, H. M. Kelleher 1..... dry
Jackson, Pois & Johnson 1 ..... dry
Thuman, Maer & Standiforth 1 ..... dry
Meade, Robertson & McMahon 1 ..... dry
Farmer, Rose and others 1 ..... dry
Farmer, Sun Oil Co. 18 ..... dry
Graham, The Texas Company 1 ..... dry
Gose, Continental Oil Co. 60 ..... dry
Wilson (Block 11) Consolidated Oil Co. of Texas 1 ..... dry
Wilson-B, Fain-McGaha and Producers Oil Co. 4 ..... dry
Helm, Hines and Conoco 1 ..... dry
Andrews, Hines, Troutt and others 1.... dry
Wilson (Block 19), Riner & Bailey 1.... dry

Completions 53
Production 2563
Dry 23

COOKE COUNTY

Lynch, Stahl et al, Heydrick-Camp Drlg. Co. 1 8
Campbell, Green and others 2 7
Campbell, Green and others 3 ..... dry
Fields, Maer & Stainforth 1 ..... dry
Dennis, A. V. Grant and others 1..... dry
Lewis, P. R. Harris 1 ..... dry

Completions 6
Production 15
Dry 4

CLAY COUNTY

Hawthorne, Comac Oil Co. 1..... dry
Mathews, Fain-McGaha Oil Corp. 2..... gas
Atkins, Clark and others 1..... dry

Completions 2
Gas 1
Dry 1
Gas production 2,000,000

GRAYSON COUNTY

Getzendaner, Miller Drilling Co. 1..... dry

HASKELL COUNTY

Newcomb, Kouri and Healdon Oil & Gas Co. 1 ..... dry

JACK COUNTY

Jones Estate, Buttram Pet. Co. 8..... 55
Cullers, Shaw Oil Co. 8 60
Booth, Hammon & Garrett 1 ..... dry
McClure, But.ram Pet. Co. 1 ..... dry
Johnson, Fletcher Royalty & Drilling Co. 1 ..... dry
Holmes-A, Marland & Zoch 1 ..... dry

Completions 6
Production 115
Dry 4

MONTAGUE COUNTY

Loy et al, Arco Oil Co. 3 15
Salmon-A, Bridwell & Heydrick 4..... 55
Loy et al, Pure Oil Co. 4 25
Hinton, The Texas Company 3 10
Boulden, R. I. Carter 1 16
Cunningham, Carter & Rycade 6..... gas
Maddox-A, Conoco Oil Co. 28 58
Bouldin, Oil Operators Trust Co. 4 26
Howard, Petroleum Producing Co. 2 20
Loy et al, Arco Oil Co. 4 37
McGaughy, Bridwell-Heydrick 5 130
Boulden, R. I. Carter 2 26
Cunningham, Carter & Rycade 7 32
Bouldin, Oil Operators Trust Co. 5 31
Keck, Pure Oil Co. 3 55
Maddox-A, Pure Oil Co. 7 57
Bouldin, R. I. Carter 3 ..... gas
Bouldin, Oil Operators Trust Co. 6 ..... gas
Ditto, Dickey and others 1 ..... dry
Howard, Petroleum Producing Co. 3..... dry

Completions 20
Production 592
Gas production 31,500,000
Dry 2

WICHITA COUNTY

Kemp & Kempner, G. S. Dudley 4..... 10
Kemp & Kempner-A, Shappell Oil Co. 13 20
H. Willis, T. M. Convey 1 3
H. Willis, T. M. Convey 2 10
H. Willis, T. M. Convey 3 4
H. Willis, T. M. Convey 4 8
H. Willis, T. M. Convey 5 5
H. Willis, T. M. Convey 7 4
H. Willis, T. M. Convey 8 3
H. Willis, T. M. Convey 9 3
H. Willis, T. M. Convey 10 2
H. Willis, T. M. Convey 11 2
Hiram Willis, Willis & Crabtree 1 3
Hiram Willis, Willis & Crabtree 3 4
Hiram Willis, Willis & Crabtree 4 3
Hiram Willis, Willis & Crabtree 5 2
Hiram Willis, Willis & Crabtree 6 1
Kemp & Kempner, Grayce & Cotton 14. 133
Burnett, J. C. Jennings and o hers 1... 16
R. S. Allen, Magnolia Pet. Co. 10 30
Watkins, Magnolia Pet. Co. 12 7
Chilson, W. B. Omohundro 1 15
Schmisseur, Grayce Oil Co. 4 17
Waggoner-C, H. Clark and others 6 10
Kemp & Kempner, Coleman & Coppock 5 150
Kemp & Kempner (Lot 4) Coleman & Coppock 6 115
Kemp & Kempner, Holbrook & Woods 1 100
Kemp & Kempner, Holbrook & Wood 16 110
Kemp & Kempner-A, Shappell Oil Co. 15 12
Watkins, Vergate Oil Co. 4-D 50
Roller-A, Ascot Co. 2 ..... dry
W. H. Chilsen, Lomas and others 1 ..... dry
Warren, Panhandle Refining Co. 2..... dry
Warren, Panhandle Refining Co. 3..... dry
Chilsen-A, E. J. Slump 1 ..... dry
Waggoner Bros., L. P. Hammond 1..... dry
A. J. Schulz, C. H. Lebow 12 ..... dry
Beaver-Electric, Perkins & Cullum 9... dry
W. T. Waggoner, The Texas Co. 346.... dry
E. Daume, Wolfe & Grayce Oil Co. 4 .... dry
Dutton, E. E. Birk and others 1..... dry
H. Willis, T. M. Convey 6 ..... dry
H. Willis, T. M. Convey 12 ..... dry
S. M. Daniels, Grayce Oil Co. 12 ..... dry
H. Reilly, Magnolia Pet. Co. 137 ..... dry
Warren, Magnolia Pet. Co. 11 ..... dry
Hiram Willis, Willis & Crabtree 2 ..... dry
Watkins, Magnolia Pet. Co. 11 ..... dry
Watkins, Vergate Oil Co. 9-D ..... dry
Dutton, C. E. Burk and others 1..... dry
Chilson, Maxwell Newton 1 ..... dry
Sparks, Bridwell & Mayfield 1 ..... dry
G. E. Ancell, Apple & Brandeberry 1.... dry
Hoge, Henry Hobbs 1 ..... dry
Etheridge, Kimmell and others 2 ..... dry
W. T. Waggoner, The Texas Co.... 350 dry

Completions 56
Production 852
Dry 26

WILBARGER COUNTY

Milner, Roxana Pet. Corp. 1 26
Waggoner-B, The Texas Company 5 90
Waggoner-M, Fain-McGaha Oil Corp. 1. 32
Waggoner-M, Fain-McGaha Oil Corp. 3. 140
Waggoner-O, Fain-McGaha Oil Corp. 3. 48
Waggoner-A, Lawson 2 125
Waggone-F, Waggoner Refining Co. 1.. 25
Waggoner-A, Barkley & Meadows 2..... 125
Waggoner-A, Petroleum Producers Co. 4 10
Waggoner-R, The Texas Company 3.... 146
Waggoner-D, The Texas Company 1.... 145
Waggoner-E, The Texas Company 2.... gas
Waggoner-D, Golding, Cochran et al 1.. 250
Waggoner-H, Humble O. & R. Co. 21... 25
Waggoner-O, Phillips Pet. Co. 2 103
Waggoner-NN, Phillips Pet. Co. 18..... 31
Waggoner-QQ, Phillips Pet. Co. 23..... 38
Waggoner-B, The Texas Company 6.... 141
Waggoner-P, Fain-McGaha Oil Corp. 1.. dry
Waggoner-F, Murchison Oil Co. 1 ..... dry
Waggoner-G, Murchison Oil Co. 1..... dry
Waggoner, Boller 1 ..... dry
Waggoner, Burton and Un.ted Oil & Royalty Co. 1 ..... dry
Waggoner, Muse and others 1 ..... dry

Completions 24
Production 1500
Gas production 700,000
Dry 5
Abandoned locations 1

YOUNG COUNTY

Langston, Kleiner and others 2..... 38
Johnson, Allday Oil Corp. 2 40
Johnson, Allday Oil Corp. 3 130
Hawkins, Cunningham 1 240
Boone, Pennell Oil Co. 1 225
McKinley, Reed & Wooten 1 235
Eddleman, White 1 35
Johnson, Allday Oil Corp. 1 15
Pitman, Panhandle Oil Co. 1 71
Johnson, Shappell Oil Co. 1 225
McKinley, Allday Oil Corp. and Carter 2 135
Hawkins, Cunningham 2 125
Hawkins, Cunningham 3 175
Boone, Pennell Oil Co. 2 283
McKinley, Riggs and others 1 125
Graham, Goodley Oil Co. 2-A 40
Hinson, Gross and others 1 20
Boozer, Montray Oil Co. 1 50
Hinson, Nash & Windfohr 4 25
Ma.his, Paull Oil Co. 2 25
Costello-C, Tidwell 1 335
McKinley, Allday & Carter 3 62
McKinley, Allday & Carter 4 85
Langston-A, Kleiner and others 1 6
Boone, Pennell Oil Co. 3 160
McKinley, Riggs and others 2 8
Johnson, Shappell Oil Co. 2 40
Johnson, Shappell Oil Co. 3 50
Oatman, Panhandle Oil and Riggs 1.... dry
Stewart, Reed & Wooten 1 ..... dry
Boone, Stafford 1 ..... dry
Lowe, Wolf and others 2 ..... dry
A. Graham, Godley Oil Co. 3 ..... dry
Scarborough, Paull Oil Co. 2 ..... dry
Ragland, Seaboard Oil Co. 2 ..... dry
Boone, Casey and others 1 ..... dry
Langston, Kleiner and others 3 ..... dry
Street, Riggs and others 1 ..... dry
Boone, S.afford 2 ..... dry
Johnson, Allday Oil Corp. 5 ..... dry
Johnson, Parker and others 1 ..... dry
Boyd, Pennell Oil Co. 1 ..... dry
Carter, Fisher & Gilliland 1 ..... dry
Garner, Fuller & Morrison 1 ..... dry
Knox, Kessler & Logan 1 ..... dry
Pittman-A, Panhandle Ref. et al 1 ..... dry
Eddleman, Coones & Hotchkiss 1 ..... dry
Stinson, Texas-Pacific Coal & Oil Co. 1. dry
Johnson, Alexander and others 2..... dry
Thomas, Roberts Oil Corp. 1 ..... dry
Bloodworth, Seigler 1 ..... dry

Completions 51
Production 2903
Dry 23

RANGER DISTRICT COMPLETIONS

BROWN COUNTY

Tullos, Atlantic Oil Prod. Co. 1..... 63
Hill, Cranfill & Reynolds 1 75
Newton, Cranfill & Reynolds 2 60
Allen, Humble O. & R. Co. 4-A 15
Curry, Pandem Oil Corp. 4-B 40
Hickman, Breeding and others 1 300
Allcorn, Central Texas Ref. Co. 3 60
Brown County fee, Clark-Buffalo Oil 2. 50
Brown Coun y fee, Clark-Buffalo Oil 3. 100
Hickman, Gilman & McMurray 3..... 700
Curry, Pandem Oil Co. 6-B 30
Hutton, Pandem Oil Co. 3 35
Hutton, Pandem Oil Co. 4 50
Bush, Peckham and others 1 100
Hickman, Phillips Pet. Co. 7 150
Curry, M. L. Richards 3 65
Matthews, Hammon & Garrett 1 5
Gilbreath, Amerada Oil Corp. 5 50
Allcorn, Central Texas Ref. Co. 4 236
Bull, Central Texas Ref. Co. 1 16
Newton, Cranfill & Reynolds 3 40
Boyson, Jay Hawk Oil Co. 1 40
Boyson, Jay Hawk Oil Co. 2 60
Hutton, Syndicate Oil Co. 1 3
Hickman, The Texas Company 24 800
Galyan, H. P. Evans 1 8
Byler, Charter Oil Co. 4 45
Bush, Henshaw Oil Corp. 1 275
Bush, Henshaw Oil Corp. 3 250
Gilbreath, Humble O. & R. Co. 11 1
Curry, Scrivenor and others 1 50
Brown County fee, Clark-Buffalo Oil 4. 10
Brown County fee, Clark-Buffalo Oil 6. 100
Hutton, Pandem Oil Co. 5 40
Hutton, Pandem Oil Co. 6 30
Hickman, Phillips Pet. Co. 10 45
Curry, L. B. Sarda 4 50
Hill, Roeser & Pendleton 1 10
Curry, Pandem Oil Co. 5-B ..... gas
Watson, Sawyer and others 1 ..... gas
Curry, Syndicate Oil Co. 3 ..... gas
Kesley, Blanchard and others 2 ..... dry
George, Gibson & Johnson 1 ..... dry
Mansfield, Logan & Carter 1 ..... dry
Allcorn, Mitchell 2 ..... dry
Turner, Scrivenor and others 1 ..... dry
McDaniel, Randell and others 1 ..... dry
Perry, Davis and others 1 ..... dry
Perry, Lamb & Shaw 1 ..... dry
Perry, Lamb & Shaw 2 ..... dry
Perry, Lamb & Shaw 3 ..... dry
Curry, Pandem Oil Co. 7 ..... dry
Thomason, Pandem Oil Co. 1 ..... dry
J. H. Fry, Rex-Pyramid Oil Co. 16 ..... dry
Hutton, M. L. Richards 1 ..... dry
Turner, Westbrook and others 2 ..... dry
Gwathney, Lamb & Shaw 3 ..... dry
Newton, G. P. Mitcham 1 ..... dry
Curry, Pandem Oil Co. 2-A ..... dry
Hickman, Phillips Pet. Co. 9 ..... dry
Bush, Preston and others 1 ..... dry
Brown County Fair Assn., Brock and others 1 ..... dry
Smith, Dunninger and others 1 ..... dry
Cox, Duffield & Howard Pet. Co. 1..... dry
Eddington, Williamson and others 2.... dry
Brown County fee, Clark-Buffalo Oil 5. dry
Hickman, Gilman & McMurray 4 ..... dry
Smith, Hoffman & Page 1 ..... dry
George, Kelsey and others 1 ..... dry
Hu ton, M. L. Richards 3 ..... dry
Brown, J. L. Smith 1 ..... dry
Stanley, E. F. Aldrich 1 ..... dry
Cheatham, United Royalty Co. 1 ..... dry
Hutton, M. L. Richards 2 ..... dry

Completions 74
Production 505
Gas production 6,750,000
Dry 21
Abandoned locations 2

CALLAHAN COUNTY

Hickman, Mortimer & Benton 1..... 3
Edwards, Brown & Co. 3 ..... dry
Mayfield, English Oil Co. 1 ..... dry
Clinton, House and others 1 ..... dry
Wylie, Parks & Gill 1 ..... dry
Biggerstaff, Peer Oil Corp. 1 ..... dry
George, Shadbolt & Creighton 2..... dry
Hall, Humble O. & R. Co. 1 ..... dry
Johnson, Manha.tan Oil Co. 1 ..... dry
Alexander, H. M. Pardee 1 ..... dry

Completions 10
Production 2
Dry 9

COLEMAN COUNTY

Wilson, Dallas Petroleum Co. 1 18
Gardner, Anzac Oil Co. 1 170
Overall, Manhattan Oil Co. 1 30
Davenport, Forster and others 1 6
Sealy-Smith, Roth & Faurot 1 ..... gas
Jennings, Cunningham and others 2..... dry
Casey, Empire Gas & Fuel Co. 1 ..... dry
Seals, S. D. Owens 1 ..... dry
Yancy, Behout & Sullivan 1..... dry
Floyd, Humphrey Bros. & Dozier 1..... dry
Chandler, Toombs & Deppler 1 ..... dry
Sharp, Kingwood Oil Co. 1 ..... dry
Morris, Canary and others 1 ..... gas

Completions 13
Production 220
Gas production 15,000,000
Dry 4
Abandoned locations 2

EASTLAND COUNTY

Fox, John Hooser 9 15
Fox, John Hooser 10 30
Turner, Cranfill & Reynolds 2 10
Duffer, Barkley and o hers 3 10
Hamilton, Schlmmer Prod. Corp. 1..... 10
Thorp, McLester & States 1-B 80
Parker, Goodwin and others 1..... gas
Thompson, Livingston & Weelman 1.... gas
Anderson, Lone Star Gas Co. 3 ..... gas
Citizens, Teatsorth and others 4 ..... dry
Powell, Gholson and others 1 ..... dry
Howard, Parsons and others 1 ..... dry
Jones, Parsons and others 1 ..... dry
Henry, Hosser and others 1 ..... dry
Duffer, Chestnut & Smith 1 ..... dry
Ernes., Schimmel Prod. Corp. 1 ..... dry
Tate, Cranfill & Reynolds 1 ..... dry
Stewart, P. Hoffman 1 ..... dry
Rosenquest, Adamson & Bearman 4..... dry
Webb, Harbin, Wylie and others 1..... dry

Completions 20
Production 165
Gas production 23,250,000
Dry 11

PALO PINTO COUNTY

Stuart, Texas-Pacific C. & O. Co. 156... 40
Marlow, T. G. Shaw 1 ..... gas
Lane, Dixie Drilling Co. 1 ..... dry
Gilbert, Cranfill & Reynolds 2 ..... dry
Dalton, Dalton Oil Co. 7 ..... dry
Hitson, Panhandle Ref. Co. 1 ..... dry
Byer, Panhandle Ref. Co. 1 ..... dry
Doan, Hill & Ritter 1 ..... dry

Completions 8
Production 40
Gas production 100,000
Dry 6

SHACKELFORD COUNTY

Cook, Roeser & Pendleton 1-A-62 535
40-A-48, Roeser & Pendleton 1-A and Marland 15
Matthews, Tannehill Oil Co. 1 372
Harvey, J. K. Simmons 3 105
Cook, Roeser & Pendleton 31-B-60 40
Harvey, O. P. Deener 1 17
Reynolds, Albany Oil Co. 7 ..... dry
Elliott, McGee 1 ..... dry
Barkley, A. C. Abbott 1 ..... dry
Moberley, Nash & Windfohr 1 ..... dry
Proctor, Prairie O. & G. Co. 2..... dry

Completions 11
Production 1084
Dry 6

STEPHENS COUNTY

McNabb, Clark & Hooker 2 25
Binney, Texas-Pacific C. & O. Co. 72... 52
Bradford, Adamson & Fouts 1..... 10
Talle et al, Schimmel Prod. Corp. 1.... 8
Ball, Pace & Ward and others 7..... gas
Cook, J. L. Thompson 1 ..... dry

Completions 6
Production 95
Gas production 4,500,000
Dry 1

ARKANSAS

Summary of Field Operations

	Comp.	Prd.	Dry	Gas	Rgs.	Drg.	T'l.
Bradley	0	0	0	0	1	1	1
Chicot	0	0	0	0	1	0	1
Clark	0	0	0	0	0	2	2
Clay	0	0	0	0	0	1	1
Columbia	0	0	0	0	1	3	4
Dallas	0	0	0	0	0	1	1
Faulkner	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Garland	1	0	1	0	0	1	1
Grant	0	0	0	0	0	1	1
Jackson	0	0	0	0	0	1	1
Lincoln	0	0	0	0	0	1	1
Little River	0	0	0	0	0	1	1
Logan	0	0	0	0	0	1	1
Miller	0	0	0	0	0	2	2
Nevada	3	65	1	0	4	2	6
Ouachita	1	30	0	0	0	4	4
Pike	0	0	0	0	0	2	2
Poinsett	0	0	0	0	0	1	1
Pope	0	0	0	0	0	1	1
Union	5	93	2	0	3	30	38
Woodruff	0	0	0	0	0	1	1
Ttl. Mar.	10	188	4	0	14	59	73
Ttl. Feb.	15	939	8	1	13	44	57
Difference	5	751	4	1	1	15	16

WELLS COMPLETED

GARLAND COUNTY

1-3-19 Garrett, H. H. Givans 1..... dry

NEVADA COUNTY

10-14-21 Womack, Ames & Zingg 1-B 15
31-13-20 Groves, Autrey Oil Co. 1..... dry
6-14-20 J. Haynie, Autrey Oil Co. 1-F 50

Wells completed 3
Production 65
Dry 1

OUACHITA COUNTY
35-15-16 Robertson, Little Fay Oil 4 ... 30
UNION COUNTY
17-18-15 Fitzgerald, C. H. Allison 10 ... 8
12-17-15 Kavanaugh, W. R. Keever 1 ... 35
7-18-14 Hill, Morefield et al 1 ... 50
10-17-14 Townsend, Oilwell Corp. ... dry
12-17-15 Ezell, L. M. Vaughn, tr. 2 ... dry

Wells completed ... 5
Production ... 93
Dry ... 2

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prd.	Dry	*Gas	Rgs.	Drg.	T'l.
Bienville	1	0	1	0	0	3	3
Bossier	1	150	4	6	6	17	23
Caddo	10	2,315	7	6	11	18	29
Caldwell	1	0	1	0	1	0	1
Catahoula	1	0	1	0	1	2	3
Claiborne	0	0	0	0	0	2	2
DeSoto	3	0	2	1	2	7	9
E. Carroll	0	0	0	0	1	0	1
Franklin	0	0	0	0	0	2	2
Grant	1	0	1	0	0	2	2
LaSalle	1	0	1	0	0	2	2
Lincoln	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Morehouse	1	0	0	1	2	5	7
Natchitoches	0	0	0	0	0	1	1
Ouachita	5	0	0	5	4	5	9
Rapides	0	0	0	0	0	3	3
Red River	1	0	1	0	0	0	0
Richland	11	0	2	9	5	14	19
Sabine	2	110	1	0	1	5	6
Union	7	15	2	4	5	5	10
Webster	7	0	1	6	5	13	21
W. Carroll	1	0	1	0	0	0	0
Winn	2	0	2	0	0	0	0
Ttl. Mar.	66	2,590	38	32	47	108	155
Ttl. Feb.	47	435	17	22	43	116	159
Difference	19	2,105	11	10	4	8	4

*Gas production: Bossier, 117,172,000; DeSoto, 14,000,000; Morehouse, 12,000,000; Ouachita, 57,550,000; Richland, 332,822,430; Union, 10,546,000; Webster, 112,000,000; total, 656,092,490 feet.

WELLS COMPLETED
BIENVILLE PARISH
11-17- 6 Perritt, Edwin J. Forest 1 ... dry
BOSSIER PARISH
14-16-12 Simpson, Clifton F. Davis 5 ... dry
15-19-11 Bliss & Wetherbee, Humble O. & R. 30 ... dry
28-23-11 Bollinger, Northwest La. Gas 3 ... gas
25-16-12 Hodges, Palmer Corp. 9-B ... gas
26-23-12 G. W. Roberson, Palmer Corp. 1 ... 150
7-18-11 Ledbetter, Rogers & Jensen 1 ... dry
31-23-11 Kilgore, Sides & Walker 1 ... gas
36-23-12 Wilkinson, The Texas Co. 2 ... gas
31-23-11 Bain, Woodley & Collins 1 ... gas
36-23-12 Bollinger, Woodley & Collins 1 ... gas
15-23-12 L. & A., Woodley & Collins 3 ... dry

Wells completed ... 11
Production ... 150
Dry ... 4
Gas ... 6
Gas production ... 117,172,000
CADDO PARISH
14-21-15 Dillon, Dixie Oil 90 ... 40
14-21-15 Dillon, Dixie Oil 91 ... 2270
28-18-16 Furrh, Magnolia Pet. 1 ... dry
13-20-15 Youree-Randolph, D. C. Richardson est. 6 ... dry
21-17-13 Mattie Myer, Simmons & Harrell 1 ... dry
21-17-13 Mattie Myer, Simmons & Harrell 2 ... dry
15-20-15 Thomas et al, Simplex Oil 3 ... 5
11-20-16 A. L. Barry, Standard Oil 1-B ... dry
15-15-12 Hutchinson, The Texas Co. 5 ... dry
15-21-15 D. H. Raines, The Texas Co. 19 ... dry

Wells completed ... 10
Production ... 2315
Dry ... 7
CALDWELL PARISH
6-12- 4 Crockett, Grayson Oil 1 ... dry
CATAHOULA PARISH
23- 8- 5 Tensas Delta, Standard Oil 1 ... dry
DESOTO PARISH
3-10-13 Wolff, Benson Oil 2 ... gas
9-12-11 Jenkins, Dixie Oil 1 ... dry
25-13-12 Grand Bayou Planting Co., The Texas Co. 5 ... dry

Gas production ... 14,000,000
GRANT PARISH
4- 7- 4 Calhoun, W. D. Ball et al 2 ... dry
LASALLE PARISH
2- 9-1e Gibson, Wingfield et al 2 ... dry
MOREHOUSE PARISH
13-20- 4 Wolf & McInnis, Moody-Seagraves 1 ... gas

Gas production ... 12,000,000
OUACHITA PARISH
7-19-4 Cole, Amalgamated Co. 1 ... gas
19-18-4 McGee, Jordan Drlg. Co. 2 ... gas
1-19-4 Central Real Estate, Palmer Corp. 2 ... gas
49-20-4 Moore, Peerless Carbon Co. 3 ... gas
6-19-5 Nelson fee, United Carbon Co. 2 ... gas

Wells completed ... 5
Gas ... 5
Gas production ... 57,550,000
RED RIVER PARISH
1-14-12 Neeley, Hazlett & Simmons 2 ... dry
RICHLAND PARISH
33-16-6 Boise, F. M. Fuller 1 (loc.) ... abd
20-16-6 Ches Wymons, Gulf Ref. Co. 1 ... gas
8-16-6 Sartor, Moody-Seagraves 1-A ... gas
21-16-6 Thompson, Natural G. & F. 2-C ... dry
4-15-6 Boughton, Noe & Meredith 1 ... gas
2-15-5 Margie Hatch, Oliver & Masters 1 ... gas
2-15-5 R. Hatch, Oliver & Masters 2 ... gas
24-17-5 Cummings, Ouachita Nat. Gas 1 ... gas
20-16-6 Sartor, Southern Carbon Co. 2 ... gas
8-16-6 Spann, Southern Carbon Co. 1 ... gas
20-16-6 Mulhern, United Carbon Co. 1 ... gas

Wells completed ... 11
Gas ... 9
Gas production ... 332,822,430
SABINE PARISH
33-10-12 McElroy, Ruffin et al 1 ... 110
8- 7-12 Bowman-Hicks, Zwolle O. & G. 6 ... dry
UNION PARISH
7-23-1e Security Trust, Carter & Goodwin 1 ... 15
34-23-2e Robertson, Moody-Seagraves 1 ... gas
9-20-3e Hill, Industrial Gas Co. 2 ... gas
22-20-3e Parks, Interstate Nat. Gas Co. (drk.) 1 ... abd
6-21-4e Stephens, Interstate Nat. Gas Co. (loc.) 1 ... abd
7-21-3e Waldrop, Natural G. & P. Co. 1 ... gas
30-20-4e Bernstein, John Potts, tr., 1 ... gas

Wells completed ... 7
Production ... 15
Dry ... 2
Gas ... 4
Gas production ... 10,548,000
WEBSTER PARISH
36-23-10 North Cen. Tex., Ark. Nat. Gas Co. 1 ... dry
1-22-10 Munn, C. H. Lyons et al 1 ... gas
36-21-10 Sexton, C. H. Lyons et al 1 ... gas
36-23-10 J. L. Munn Magnolia Pet. 1 ... gas
29-23- 9 R. J. Munn, Magnolia Pet. 1 ... gas
21-21-10 Crichton, Ohio Oil 3 Acct. 2 ... gas
23-21-10 Cox, Woodley Pet. 1-B ... gas

Wells completed ... 7
Dry ... 1
Gas ... 6
Gas production ... 112,000,000
WEST CARROLL PARISH
2-19-4 White, Palmer Corp. 1 ... dry
WINN PARISH
6-12-1w Rolen, Ohio Oil 2 Acct. 1 ... dry
19-11-3w Southern Minerals Co., H. M. Roark 3 ... dry

EAST TEXAS

Summary of Field Operations

	Comp.	Prd.	Dry	*Gas	Rgs	Drg	T'l.
Cass	0	0	0	0	1	1	1
Harrison	6	0	1	5	0	6	6
Marion	1	5	0	0	0	1	1
Panola	11	0	3	8	6	6	12
Shelby	1	0	1	0	0	1	1
Ttl. Mar.	19	5	5	13	6	15	21
Ttl. Feb.	12	0	4	8	2	15	17
Difference	7	5	1	5	4	0	4

*Gas production: Harrison, 21,000,000; Panola, 21,345,896; total, 42,345,896 feet.

WELLS COMPLETED
HARRISON COUNTY
J. Short Sur.: Furrh, Fuller & Fuller 3 ... dry
J. Short Sur.: Furrh, Fuller & Fuller 4 ... gas
J. Short Sur.: Furrh, Doney et al 2 ... gas
T. D. Wilson Sur.: Bush, Mississippi-Waskom Pet. Gas Co. 2 ... gas
E. Pollock Sur.: Waterman, State Line O. & G. Co. 6 ... gas
E. Pollock Sur.: Waterman, Waterman Brick & Tile Co. 4 ... gas

Wells completed ... 6
Dry ... 1
Gas ... 5
Gas production ... 21,000,000
MARION COUNTY
N. Gupton Sur.: Mebane-Stiles, Trimount Pet. Co. 7 ... 5
PANOLA COUNTY
B. C. Jordan Sur.: Cavin, S. H. Gardner et al ... gas
George Goodwin Sur.: P. W. Baker, Hines et al 1 ... dry
B. C. Jordan Sur.: Ella Baker, Magnolia Pet. Co. 3 ... gas
B. C. Jordan Sur.: C. G. Steel, Magnolia Pet. Co. 14 ... gas
Jane Thorp Sur.: E. C. Tillery, Magnolia Pet. Co. 1 ... gas
Evans Brackins Sur.: Adams, Natural Gas Products Co. 2 ... gas
Evans Brackins Sur.: T. C. Adams, Natural Gas Products Co. 3 ... gas
Isom Hatcher Sur.: Adams, The Texas Co. 8-B ... dry
Isom Hatcher Sur.: Adams, The Texas Co. 9-B ... dry
J. Womack Sur.: Crenshaw, D. Thomason 3 ... gas
J. Womack Sur.: Crenshaw, D. Thomason 4 ... gas

Wells completed ... 11
Dry ... 3
Gas ... 8
Gas production ... 21,345,896
SHELBY COUNTY
W. J. Crane Sur.: Pickering Lumber Co., Magnolia Pet. Co. 1 ... dry

GULF COAST FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Batson	2	40	0	0	0	3	3
Big Creek	0	0	0	0	0	3	3
Boling	16	1,650	11	1	1	5	6
Blue Ridge	12	7,400	1	0	2	10	12
Barbers Hill	1	320	0	0	0	2	2
Dayton	0	0	0	0	0	0	0
Edgerly, La.	3	275	1	0	2	3	5
Goose Creek	3	140	0	0	0	7	7
Hull	1	807	0	0	0	8	8
Humble	0	0	0	0	0	0	0
High Island	1	0	1	0	0	5	5
Jennings, La.	3	45	2	0	3	4	7
Lockport, La.	2	400	1	0	1	4	5
Markham	1	0	1	0	0	1	1
Nash	2	2,431	0	0	0	5	5
Orange	5	891	0	0	8	9	17
Orchard	0	0	0	0	0	1	1
Pierce Junc.	11	8,500	1	0	5	14	19
Saratoga	2	187	0	0	0	2	2
Sour Lake	3	220	0	0	0	4	4
Spindletop	15	9,725	0	0	0	19	19
So. Liberty	7	4,550	0	0	0	8	6	14
Starks	0	0	0	0	0	0	1	1
Sulphur	1	1,500	0	0	0	1	1	2
Vinton	3	212	0	0	0	2	4	6
W. Columbia	1	20	0	0	0	2	2	4
Miscellaneous	26	4,974	22	0	23	42	65
Total Mar.	124	44,287	41	1	*56	165	221
Total Feb.	103	40,652	49	1	31	165	196
Difference	21	3,633	8	0	25	0	25

*Includes rigs and locations.

WELLS COMPLETED
BARBERS HILL-CHAMBERS COUNTY
Kirby, Mills Bennett Pet. Co. 1 ... 320
BATSON—HARDIN COUNTY
Producers, Ada Bell Oil Co. 118 ... 5
Conzelman, East Batson Oil Co. 10 ... 35

Wells completed ... 2
Production ... 40
BLUE RIDGE—FORT BEND COUNTY
Blakely, Blakely & Means 1 ... 200
Davidson, (H. R.) Cullen 1 ... 1500
Lafferty, H. R. Cullen 1 ... 1500
Blakely Bassett, Fort Bend Oil Co. 1 .. 1000
Blakely, E. B. Gordon 2 ... 1000
Blakely, H. B. Gordon, trustee, 2 ... 50
Blakely Bassett, H. B. Gordon, trustee (Fort Bend Oil Co.), 3 ... 50
Blakely, Gordon & Sharp 2 ... 100
West Schenck, Gulf Production Co. 11 .. dry
Lusher, Gulf Production Co. 11 ... 1700
Robinson, Navarro Oil Co. 1-B ... 200
Robinson, Navarro Oil Co. 3-B ... 100

Wells completed ... 12
Production ... 7400
Dry ... 1
BOLING—WHARTON AND FORT BEND
Abendroth, Gulf Production Co. 3 ... 400
Waytek, Hyde Production Co. 7 ... dry
Waytek, Hyde Production Co. 8 ... 250
Hounshell, Ingram Prospecting Co. 1 .. dry
Bay, J. C.-Patterson, Hyde Co. 2 ... dry
H. R. Farmer, Sun Oil Co. 7 ... dry
Bay, Texas Gulf Sulphur Co. 10 ... dry
Volney, Texas Gulf Sulphur Co. 2 ... dry
Banker, W., Texas Gulf Sulphur Co. 7 .. dry
McCarson heirs, Texas Gulf Sulphur Co. 2 ... dry
Plachy, T., Texas Gulf Sulphur Co. 2 ... dry
Bay, Weed-Gayle Oil 16 ... 300
Feltz, Joe, Weed-Gayle Oil 17 ... dry
Bay, J. C., Weed-Gayle Oil 13-A ... 700

Wells completed ... 14
Production ... 1650
Dry ... 10
EDGERLY—CALCASIEU PARISH
Moore,Green Oil Co. 9 ... 75
Lyons, Plummer Oil Co. (J. G. Sutton et al) 1 ... dry
Wilson, Wilson-Broach 3 ... 200

Wells completed ... 3
Production ... 275
Dry ... 1
GOOSE CREEK—HARRIS COUNTY
Galliard, Humble Oil & Refining Co. 5 .. 100
Smith, Humble Oil & Refining Co. 20-A .. 20
Sweet, Humble Oil & Refining Co. 10 .. 20

Wells completed ... 3
Production ... 140
HIGH ISLAND—CHAMBERS COUNTY
Cade, McLean Oil Co. (Sun Oil Co.) 6-C .. dry
HULL—LIBERTY COUNTY
Phoenix Development Co., Gulf Prod. Co. 40 ... 100
Phoenix Development Co., Gulf Prod. Co. 89 ... 40
Dolbear, Republic Production Co. 7 ... 67
Dolbear, Republic Production Co. 41 ... 600

Wells completed ... 4
Production ... 807
JENNINGS—ACADIA PARISH
Crowley, Jenning Petroleum Co. 1 ... 45
Latreille, The Texas Company 4-B ... dry
Latrielle, Yount Lee Oil Co. 2 ... dry

Wells completed ... 3
Production ... 45
Dry ... 2
LIBERTY—LIBERTY COUNTY
Lacour, Abercrombie & Harrison 1 ... 100
Abshier, Sun Oil Co. 1 ... 300
Mitchell, Sun Oil Co. 1 ... 700
Green, The Texas Company 1 ... 2500
W. Stiti heirs, The Texas Company 8 .. 1200
Mitchell, Yount Lee Oil Co. 2 ... 500
Mitchell, Yount Lee Oil Co. 3 ... 600

Wells completed ... 7
Production ... 4550
LOCKPORT—CALCASIEU PARISH
Fee, Vacuum & Gulf A-1 ... 400
Farquahar et al, Vacuum Oil-Gulf Refg. Co. 3 ... dry

Wells completed ... 2
Production ... 400
Dry ... 1
MARKHAM—MATAGORDA COUNTY
Smith, Amsher & Bess 1 ... dry
NASH DOME—FORT BEND COUNTY
Wisdom, Rycade Oil Corp. 9 ... 231
Wisdom, Rycade Oil Corp. 22 ... 2200

Wells completed ... 2
Production ... 2431
ORANGE—ORANGE COUNTY
McLean, Brownie Babbette Oil Co. 8 ... 30
Kishi-Lang, Gulf Production Co. 2-A .. 61
Bland, Kishi et al 1 ... 30
Carbello, Rex Petroleum Co. 10 ... 30
Granger, Sinclair Oil & Gas Co. 4 ... 740

Wells completed ... 5
Production ... 891
PIERCE JUNCTION—HARRIS COUNTY
Howe, H. R. Cullen 4 ... 200
E. R. Taylor et al, Gulf Prod. Co. 9 ... dry
Taylor, Gulf Production Co. 24 ... 500
Settegast, Lee & Woodward 1 ... 900
Whitehead (second hole), Moody Corp. 2 .. 800
Hume (Reid), Moody Corp. 3 ... 250
Cain, Navarro Oil Co. 2 ... 400
Cain, Navarro Oil Co. 2-A ... 850
G. H. & S. A., Rio Bravo Oil Co. 2 ... 2000
Settegast, Rio Bravo Oil Co. 7-B ... 125
Settegast, Rio Bravo Oil Co. 8-4 ... 2475

Wells completed ... 11
Production ... 8500
Dry ... 1
SARATOGA—HARDIN COUNTY
B. B. B. & C., Gulf Production Co. 25 .. 10
Jordon, Rio Bravo Oil Co. 51 ... 177

Wells completed ... 2
Production ... 187
SOUR LAKE—HARDIN COUNTY
Farish & Ireland, Humble 2 ... 200
Fee, Gilbert Oil Co. 101 ... 10
Fee, Minor Oil Co. 82 ... 10

Wells completed ... 3
Production ... 220
SPINDLETOP—JEFFERSON COUNTY
Gladys, Gulf Production Co. 230 ... 35
Jack & Duff, Gulf Production Co. 7 ... 150
Jack & Duff, Gulf Production Co. 8 ... 100
Weed, Gulf Production Co. 12-A ... 140
Fee, Magnolia Petroleum Co. 4 ... 49
Price, Sun Oil Co. 2 ... 8
McLean, Sun Oil Co. 16 ... 500
Marrs McLean, Sun Oil Co. 19 ... 310
Gladys City, Yount Lee Oil Co. 14 ... 500
Gladys City, Yount Lee Oil Co. 53 ... 900
McFadden, Yount Lee Oil Co. 55 ... 900
McFadden, Yount Lee Oil Co. 56 ... 1600
McFadden, Yount Lee Oil Co. 57 ... 1433
McFadden, Yount Lee Oil Co. 59 ... 1700
McFadden, Yount Lee Oil Co. 60 ... 1300

Wells completed ... 15
Production ... 9725
WEST COLUMBIA—BRAZORIA COUNTY
Coon, Humble Oil & Refining Co. 4 ... 20
SULPHUR—CALCASIEU PARISH
Fee, Union Sulphur Co. 722 ... 1500
VINTON—CALCASIEU PARISH
G. & N. G., Marrs McLean 1 ... 62
Green, Seiss Oil Corp. 5 ... 25
Gordon, Vinton Petroleum Co. 9 ... 125

Wells completed ... 3
Production ... 212
MISCELLANEOUS—TEXAS
Austin County—
Gobel, Alexander & Lyle 1 ... dry
Brazoria County—
Davidson, Madgett & Abercrombie 1 .. dry
Clemens Dome, Bell, Roxana Pet. Co. 2 dry
Colorado County—
Auerbach, Carl Milentz 1 ... dry
Fort Bend County—
DeWalt—Sugarland Industries, Humble Oil & Refining Co. ... 800
Grimes County—
Cuthrell & Day, J. Pundt et al 2 ... dry
Harris County—
Hockley, Warren, Humble Oil & Ref. Co. 2 ... dry
Jefferson County—
Big Hill—Staiti, Freeport Sulphur Co. 9 ... dry
Big Hill—Staiti, Freeport Sulphur Co. 11 ... dry
Crosby, James McMurry et al 2 ... dry
Matagorda County—
Hawkinsville, Sanborn, Gulf Production Co. 5 ... dry
Sheppards Mound, Hawkins, Matagorda Dev. Co. 1 ... dry
Montgomery County—
Hardy, Johnson Hardy et al 2 ... dry
Tyler County—
Crumpit (S.), Union Sulphur Co. 1 ... dry
Washington County—
Brenham, Pennington, Miller et al 1 .. dry
Koniesiany, Pratt-Hewitt 1 ... dry
Wharton County—
Lee (J. N.), Rich Oil Corp. 1 ... dry

MISCELLANEOUS—LOUISIANA
Ascension Parish—
Sorrento, United Land Co. 5 ... dry
Calcasieu Parish—
Lake Charles, Dupre, Newton Drilling Co. 1 ... dry
Cameron Parish—
Hackberry, Watkins, Calcasieu Oil Co. 2 ... dry
Hackberry, Watkins, Calcasieu Oil Co. 3 ... abd.
Hackberry, State, Yount Lee Oil Co. 6 .. 150
Evangeline Parish—
Pine Prairie, Ducide Guillery 1 ... dry
Jeff Davis Parish—
Welsh, Welsh, Eunice Welsh Oil Co. 2 .. 24
La Fourche Parish—
Lutcher, Stark et al, Gulf Fef. Co. 2 .. dry
St. Martin's Parish—
Atchafalaya fee, Rycade Oil Co. 2 ... 4000

Wells completed ... 26
Production ... 4974
Dry ... 22

ROCKY MOUNTAIN AREA

Wyoming
Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rgs.	Drg.	T'l.
Salt Creek	6	810	0	0	4	14	18
Albany Co.	0	0	0	0	1	0	1
B. Horn Co.	1	50	0	0	0	2	2
Carbon Co.	1	0	1	0	0	3	3
Converse Co.	0	0	0	0	2	2	4
Fremont Co.	0	0	0	0	1	8	9
Goshen Co.	0	0	0	0	0	1	1
H. Spgs. Co.	0	0	0	0	0	3	3
Johnson Co.	0	0	0	0	0	3	3
Natrona Co.	0	0	0	0	1	5	6
Niobrara Co.	0	0	0	0	2	3	5
Park Co.	1	700	0	0	5	28	33
Platte Co.	0	0	0	0	0	2	2
Sw'twtr. Co.	0	0	0	0	0	9	9
Sublet Co.	1	20	0	0	1	21	22
Uinta Co.	0	0	0	0	1	3	4
W'shkie Co.	0	0	0	0	0	2	2
Weston Co.	0	0	0	0	0	10	10
Ttl. Mar.	10	1,580	1	0	18	124	142
Ttl. Feb.	39	628	27	1	16	126	142
Differece	29	952	26	1	2	2	0

MONTANA
Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Cat Creek	0	0	0	0	0	4	4
Kevin Sunburst	8	69	3	2	23	15	38
Miscellaneous	5	100	4	0	14	54	68
Total March	13	169	7	2	37	73	110
Total Feb.	9	113	7	0	22	80	102
Difference	4	47	0	2	15	7	8

COLORADO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Boulder	2	0	2	0	0	3	3
Fremont	3	219	1	0	1	14	15
Larimer	2	645	0	0	2	11	13
Moffat	1	740	0	0	8	10	18
Routt	0	0	0	0	1	5	6
Rio Blanco	0	0	0	0	1	3	4
Miscellaneous	3	0	3	0	3	35	38
Total March	11	1,604	6	0	16	81	97
Total Feb.	8	2,555	2	0	16	87	102
Difference	3	951	4	0	1	6	5

NEW MEXICO
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total March	6	85	3	1	14	86	100
Total Feb.	4	20	2	0	11	91	102
Difference	2	65	1	1	3	5	2

UTAH
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total March	0	0	0	0	2	29	31
Total Feb.	0	0	0	0	2	28	30
Difference	0	0	0	0	0	1	1

WYOMING
WELLS COMPLETED

7-51-100	Klindt, Cody Pet. Co. 1	.....	700
2-19- 78	H. & C., Ohio Oil Co. 13	..	abd
24-40- 79	SW, Midwest Oil Co., 19-L	..	452
36-40- 79	NW, Midwest Oil Co. 11-A	..	25
27-40- 79	SE, Midwest Oil Co. 1-L	....	64
12-40- 79	Empire State Oil Co. 29-A	..	100
36-43- 91	State, Utah Oil Ref. Co. 2	..	50
34-40- 79	NE, Wyoming Asso. 36-2	...	123
23-40- 79	SW, Midwest Ref. Co. 36	..	46
27-27-113	Reese Oil Co. 2	.....	20

Wells completed	10
Production	1530
Dry and abandoned	1

MONTANA
WELLS COMPLETED

20-34-1	Adams, California Pet. Corp.	..	gas
27-35-2	Lashbaugh, California Pet. Corp. 15	.....	dry
27-35-3	Rock, Colonel-Kevin 4	.....	25
26-35-2	Abell, Hardrock Oil Co. 6	.....	25
7-34-1	Harte, National Oil & Gas 7	...	10
11-32-2	Shelby Oil & Gas	.....	gas
12-32-2	Kenosha, Northern Nat. Gas Co. 5	.....	dry
7-34-1	Russel, Diamont T Rice Wood 5	.....	dry
23-15-25	NW, McDonald Creek Dev. Co.		dry
33-16-28	NW, Oakmont Pet. Co.	...	dry
19-27-3	Continental Dev. Co.	.....	dry
36-36-1	Dewey, Zenith McDonald 1	...	dry
16-27-4	State, Fulton Pet. Corp.	.....	100

Wells completed	13
Production	160
Dry	7
Gas	2

COLORADO
WELLS COMPLETED

30-10-68	Foster, Union Oil Co. of Cal.	2	145
35-18-70	Barnhart, Come Back Oil Co.	1	125
30-2n-70	Spurgeon, Boulder Pet., Inc.	1	abd
28-1n-70	Odlum, Offset Oil Synd. 1	...	abd
32-34-56	Adams, Parker Club, Inc. 1	...	dry
33- 5-91	Knowlton, Texas Prod. Co.	10	740
3-19-70	Lippis, W. F. McCormick 1	...	94
31-10-68	Buckeye, Union of Calif. 6		500
1-25-68	Orrison, Municipal Oil, Inc.	1	abd
3-8n-56	Platte Valley Pet. Co 1	....	abd
35-18-70	Hall, Continental Oil Co. 1	..	abd

Wells completed	11
Production	1604
Dry and abandoned	6

NEW MEXICO
WELLS COMPLETED

3-17-27	Daugherty, Ross & Grimm	1	15
25-20-29	Nicholas, Getty Oil, Inc. 1	..	70
34-29-11	Viles, A. Johnson, tr. 1	.....	gas
9-17- 7	Carcia, Continental Oil Co. 1		abd
12-17- 9	Hospah, Producers & Refiners 3	.....	dry
1-17-31	Gessert, Pueblo Oil Co. 1	....	abd

Wells completed	6
Production	85
Gas production	2,000,000
Dry and abandoned	3

EASTERN FIELDS

Summary of Wells Completed

Fields—	Comp.	Prod.	Dry	Gas
Allegany	25	42	0	0
Bradford	91	173	0	1
Middle Field	3	3	0	0
Venango-Clarion	20	18	1	9
Butler-Armstrong	8	11	1	3
S. W. Pa.	10	26	6	4
West Virginia	48	245	7	22
S. E. Ohio	52	934	10	14
Total March	267	1,451	24	53
Total February	261	2,130	25	66
Difference	6	679	1	13

Summary of Work Under Way

Fields—	Rigs	Drg.	Ttl.
Allegany	2	14	26
Bradford	21	90	111
Middle Field	0	4	4
Venango-Clarion	0	9	9
Butler-Armstrong	3	11	14
S. W. Pa.	4	15	19
West Virginia	26	96	122
S. E. Ohio	27	69	96
Total March 31	89	312	401
Total February 29	101	272	373
Difference	12	40	28

WELLS COMPLETED
Alleghany Field

July 2 fee, Forest Oil Corp. 01 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 02 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 03 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 06 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 07 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 09 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 010 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 012 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 013 flood 51 ..... pressure
July 2 fee, Forest Oil Corp. 14 Burdick 1
July 2 fee, Forest Oil Corp. 15 Burdick 1
July 2 fee, Forest Oil Corp. 16 Burdick 1
July 2 fee, Forest Oil Corp. 1 flood 51
July 2 fee, Forest Oil Corp. 3 flood 51 1
July 2 fee, Forest Oil Corp. 5 flood 51 1
July 2 fee, Forest Oil Corp. 6 flood 51 1
July 2 fee, Forest Oil Corp. 8 flood 51 1
Boyd & Jordan, L. E. Jordan 5 1
Chas. & Anna Schrader, Rickinson et al 1
Fee, Gordon et al 1
Fee, C. O. & W. O. Taylor 2
Fee, Phillips & Bartlett 2
Fee, E. A. McEwen 2
Fee, Andover State Bank and Maitland 4
Fee, Bradley Prod. Corp. 4
Fee, LeSuer Oil Corp. 2
Fee, LeSuer Oil Corp. 3
McDermott, John K. Cochran et al .. 2
McDermott, John K. Cochran et al .. 2
Fee, A-C-A Oil Corp. 2
S. P. O. Co. et al., First Trust Co. Wva. 94 2
Fries, N. V. V. Franchot 1
Fee, Jacob Meridan et al 1
Fee, Hugh Flynn Oil 1
F. D. & B., W. J. Fitzgerald 1

Wells completed	35
Production	42
Pressure	9

Bradford Field

Fee, South Penn Oil 1
E. J. Burns et al., Holmes & Latimer .. 4
H. H. Redfield et al., So. P. O. 10
H. H. Redfield e. al., So. P. O. 3
H. H. Redfield et al., So. P. O. 1
Fee, T. H. Kennedy 2
Fee, L. G. Dana 2
N. V. V. Franchot, T. P. Thompson, Jr. 1
Drake heirs, Hannon Oil 6
Fee, L. G. Dana 5
Fee, South Penn Oil 1
Bingham, Hazelwood Oil 4
Fee, W. C. Kennedy Co. 2
Bingham 88, South Penn Oil 1
Williamson, Greer & Simpson 1
Bingham 390, South Penn Oil 2
Bingham 405, South Penn Oil 1
Bingham 423, South Penn Oil 2
Bing. Sed. 8 No. 1, T. B. Wilson 1 3
Bingham 8 No. 1, T. B. Wilson 1 3
Bingham 408, South Penn Oil 5
Bingham 370, Hazelwood Oil 3
Bingham 582, Associated Producers .. 5
Bingham 592, South Penn Oil ..... gas
B.ng. 32 1, Anderson & MacDowell 115 .. 5
Bing. 386, Hooper & Co. 26 2
Duke, M. L. Boyle et al 21 2
Duke, M. L. Boyle et al 22 2
F. P. Lawton, Esther Oil 66 4
Bing. 389, D. W. Daly 53 1
Bing. 391, George W. Bovaird 92 1
Bing. 391, T. H. Kennedy 159 1
Bing. 490, T. H. Kennedy 160 1
Bing. 88, South Penn Oil 18 1
Midland Keating, South Penn Oil 49 .. 1
Blair, South Penn Oil 62 1
Den., South Penn Oil 119 1
Hamlin, South Penn Oil 111 1
Hamlin, South Penn Oil 112 1
Hamlin, South Penn Oil 113 1
H. E. Smith, South Penn Oil 013 .. pressure
Moody 66, South Penn Oil 38 1
Bing. 595, South Penn Oil 16 ..... gas
H. E. Smith, South Penn Oil 157 2
H. E. Smith, South Penn Oil 158 1
Bing. 405, South Penn Oil 19 1
Tract 21, Hazelwood Oil 77 1
Tract 22, Hazelwood Oil 46 1
Taylor fee, Forest Pet. Corp. 142 1
Drake fee, Forest Pet. Corp. 2-G-61.. pres
Drake fee, Fores. Pet. Corp. 2-G-63.. pres
Drake fee, Forest Pet. Corp. 2-G-67.. pres
Niles fee, Forest Pet. Corp. K- 07 .... press
Niles fee, Forest Pet. Corp. K- 08 .... press
Niles fee, Forest Pet. Corp. K-015 .... press
Niles fee, Forest Pet. Corp. 1-K-1 1
Niles fee, Forest Pet. Corp. 1-K-4 1
Niles fee, Forest Pet. Corp. 1-K-8 1
July 4 fee, Forest Pet. Corp. 202 flood 8 1
Tyler fee, Forest Oil Corp. 82 Tyler.. 1
Fee, F. L. Boquin 4
Melvin, South Penn Oil 4
Fee, G. A. Simpson 5
Norris, Minnich Bros. 2
Duke, Penn Pet. 5
Duke, Penn Pet. 3
Duke, Penn Pet. 3
Duke, M. L. Boyle 3
Rew & Hodge, South Penn Oil 1
Melvin, South Penn Oil 1
Melvin, South Penn Oil 1
Melvin, South Penn Oil 1
Jones, South Penn Oil 1
Stinson, W. J. Healey ..... pressure
Stinson, W. J. Healey ..... pressure
Berry, T. H. Kennedy, Jr. 1
Hawkins, F. J. Newton Jr. et al .... water
Hawkins, F. J. Newton Jr. et al .... water
Fee, Davis Oil 3
Fee, Davis Oil 3
Fee, Davis Oil ..... water
Fee, D. J. Moody 2
Fee, Davis Oil 2
Fee, Davis Oil ..... water
Fee, L. G. Sachenfield 2
Fee, Grow Farm Oil ..... water
Fee, G. W. Smith estate 1
Fee, D. M. Hoffman etsate 1
Fee, Penn Oil Prod. Ref. ..... water
Loop estate, N. V. V. Franchot 6
Rounds, J. W. Kaufman 12

Wells completed	91
Production	173
Gas	1
Water and pressure	15

Middle Field

McDonald, J. L. Billstone 1
Lot 408, J. G. Cochran 48 2

Wells completed	2
Production	3

Venango-Clarion

Lebrum, S. P. McCalmont estate 2 1
Gharing, Mandle & Co. 44 1
Oil City Drilling Co., E. E. Stanford 8 1
McIntosh, Williams & McIntosh 4 2
Rice & Thompson, Rice & Thompson 7.. 2
Riddle, Riddle, Covert et al 2 1
Adam, Jones Green et al 15 1
Martin, Franklin Truran et al 23 1
Hoy, Oil Well Supply 115 ..... gas
Hoy, Oil Well Supply 116 ..... gas
Keverline, Keverline & Dempseytown Gas 3 ..... gas
McLaughlin, Thomas McLaughlin 6 .. gas
Clarion—
McCauley, G. & G. Gas 2 ..... gas
Sigworth, H. C. Weaver 6 ..... gas
Sigworth, H. C. Weaves 7 ..... gas
Baughman, A. Hufnagle & Co. 1 ..... gas
Ashbaugh, Youkers & Sheffer 2 1
Beals, Master & Hess 14 ..... gas
Piper, A. D. Shorts et al 1 ..... dry
Johnson, Sigworth Bros. et al 1 7

Wells completed	20
Production	18
Dry	1
Gas	9

Butler-Armstrong

Crawford heirs, Recovery Oil 2 5
Frederick, Frazier & Co. 1 ..... gas
Keasy, T. W. Phillips Gas & Oil 1 .... gas
Ritzert, Ritzert Bros. 1 1
Nugent, McGee & Co. 1 ..... dry
Austin, G. C. Weaver 1 ..... gas
Gibson, J. C. Gibson et al 2
Bredin, Mrs. A. E. Butler 3

Wells completed	8
Production	11
Dry	1
Gas	8

SOUTHWEST PENNSYLVANIA
WELLS COMPLETED
WASHINGTON COUNTY

Scenery Hill lot, McClay & Co. 1 ..... dry
Hodge, McClay & Co. 1 ..... dry

GREENE COUNTY

Fox, Peoples Gas Co. 1 ..... gas
Lemley, Peoples Gas Co. 1 ..... gas
Stewart, Greensboro Gas Co. 1 ..... dry
Lockard, Mfrs. L. & H. Co. 1 ..... dry
Rutan, Orndoff & Co. 1 ..... dry
Pethtel, Peoples Gas Co. 1 ..... gas
Nuss, Mfrs. L. & H. Co. 1 25
Iams, Carnegie Gas Co. 1 ..... gas

Wells completed	10
Production	25
Dry	5
Gas	4

WEST VIRGINIA
WELLS COMPLETED
LEWIS COUNTY

Simmons, Hope C. & R. Co. 2 1

MARION COUNTY

Hadlis heirs, F. W. Bartlett 1 ..... dry
Wilson, Carnegie Gas Co. ..... gas
Freeland-Mansfield, Owens B. & M. Co. 2 dry
I. H. Lake, Jr., A. T. Spalding 1 ..... dry
Renner, Buffalo Oil Co. ..... gas

WETZEL AND TYLER COUNTIES

Hoge, So. P. Oil Co. 2 2
Lemasters, So. P. Oil Co. 3 1
Roberts, Mfrs. L. & H. Co. 1 10
Wycoff, Carnegie Gas Co. 1 ..... gas

MARHALL COUNTY

Anderson, Mfrs. L. & H. Co. 2 5
Reid, Mfrs. L. & H. Co. 3 ..... gas

HANCOCK COUNTY

Gibson, F. L. Freshwater 1 1

BROOKE COUNTY

Wells, Dewitt O. & G. Co. 1 7

DODDRIDGE COUNTY

Reynolds, Hope Gas Co. 2 1

RITCHIE COUNTY

Lawrence, Hope Gas Co. 2 ..... dry
Baker, Deem & Co. 1 ..... dry
Jordan, Hope C. & R. Co. 5 40
Rexroad, So. P. O. Co. 1 ..... gas
McGinnis, So. P. O. Co. 1 ..... gas

CLAY COUNTY

Summers, Virginian G. & O. Co. 5 10
James Reed, Ohio F. O'l Co. 1 25
?. C. Reed, Ohio F. Oil Co. 2 25
Brown, Swan & Co., Virginian G. & O. Co. 16 25

GILMER COUNTY

Bailey, Valley Gas Co. 4 ..... gas
Beall, Robets & Co. 1 ..... gas

BRAXTON COUNTY

Engle, United Gas Co. 1 ..... dry

WOOD COUNTY

McAtee, O. F. Graw 13 2

PLEASANTS COUNTY

Cook, Dinsmoor & Co. 38 ..... dry

ROANE COUNTY

Conley, Heck Oil Co. 12 25
Nixon, So. P. O. Co. 1 25
Nixon, So. P. O. Co. 2 25

CALHOUN COUNTY

Hardman, Hope C. & R. Co. 1 ..... gas
Robison, Dailey & Son 1 ..... gas
Nitz, Calhoun O. & G. Co. 1 ..... gas

LINCOLN COUNTY

Sweetland, L. R. Sweetland 29 ..... gas
Brumfield, Lockwood & Co. 1 ..... gas
Sias, Ray & McComas 3 ..... gas
Stowers, Foote O. & G. Co. 1 ..... gas
Meadows, U. F. G. Co. 1 ..... gas
Bias, U. F. G. Co. 1 ..... gas

MINGO COUNTY

Closterman Estate, Old Colony Oil & Gas Co. 20 15
Closterman Estate, Old Colony Oil & Gas Co. 2 ..... gas

BOONE COUNTY

Hill & Co., U. F. G. Co. 1 ..... gas
States, G. L. Cabot 2 ..... gas
Hill, Hope Gas Co. 1 ..... gas

CABELL COUNTY

Harshbarger, Big Two Mile Gas Co. 4.. gas

PUTNAM COUNTY

Mansfield, Tampico O. & G. Co. 1 ..... gas

Wells completed	48
Production	245
Dry	7
Gas	22

SOUTHEAST OHIO
WELLS COMPLETED
MONROE COUNTY

Christy, Gold Crown O. & G. Co. 3 1
Cue, Kramer Co. 11 2
Schalsbaugh, W. McCue & Co. 1 ..... dry
Bierle, Johnston & Co. 1 ..... gas

PERRY COUNTY

Sowers, Cline & Co. 2 302
Moore, Pure Oil Co. 1 ..... gas
Allen, Fouts, trustee 1 ..... gas

HOCKING COUNTY

Tracy Estate, Kachelmacher Estate 28. 140

GUERNSEY COUNTY

Dennis, Preston Oil Co. 1 25
Joyce, Leonard O. & G. Co. 7 65
Ridgely, Pure Oil Co. 5 40
Micha, Davis Bros. Co. 4 35
Ruby, Davis Bros. Co. 1 65

HOLMES COUNTY

Purdy, Kemrow Co. 2 ..... gas
Harford, East Ohio Gas Co. 1 ..... gas
Mullet, Logan Gas Co. 1 5
Close, Empire G. & P. Co. ..... dry

LICKING COUNTY

McKinney, North Fork Oil Co. 47 2
McKinney, North Fork Oil Co. 48 1
Evans, Hope C. & R. Co. 1 15
Prouts, Hope C. & R. Co. 1 20
McInturf, Hope C. & R. Co. 1 ..... dry
Cotterman, Detex O. & G. Co. 8 2
Ryan, Moore & Adams 1 ..... gas
Fink, I. C. Robinson 1 30
Hupp, Robinson & Zanhiser 1 ..... gas

COSHOCTON COUNTY

Powers, Leonard O. & G. Co. 2 50
Vanwinkle & Co., Preston Oil Co. 4 105
Shallhorn, East Ohio Gas Co. 1 ..... gas
Markley, Ohio Oil Co. 1 5

FAIRFIELD COUNTY

Graff heirs, Rush-Stewart Assn. 2 ..... dry
Shaw & Co., Myers & Co. 1 ..... gas

ATHENS COUNTY

Biddison, New Straitsville O. & G. Co. 1 dry
Woodyard, Woodyard & Co. 5 ..... dry
Finsterwald, O. C. Dunn 17 ..... dry
Finsterwald, O. C. Dunn 18 2
Black Diamond C. C. Co., Ohio F. S. Co. 2 ..... dry
Dowler, Bowman O. & G. Co. 1 ..... gas
Wood, Ronshausen & Co. 10 ..... gas
State of Ohio lands, Athens State O. & G. Co. 11 1

NOBLE COUNTY

Boney, Markey & Co. 1 ..... gas
Myers, Twin Six Oil Co. 1 ..... dry
Merry, Permain O. & G. Co. 1 ..... gas

MEIGS COUNTY

Jordan, Preston Oil Co. 1 4
Dais, Ohio D. S. Co. 1 10
Hysel, Dailey Oil Co. 3 ..... gas

WASHINGTON COUNTY

McMahan, McKay & Co. 1 1
Davis, Yellow House O. & G. Co. 1 1
Roland, Dailey 1 2
Waterson-Smith, Preston Oil Co. 1 .... dry
Lisk, Mann & Co. 2 2

JEFFERSON COUNTY

Huscroft, Sanders Oil Co. 1 2
Edmonston, Henighen & Co. 10 2

Wells completed	48
Production	245
Dry	7
Gas	22

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prd.	Dry	Gas	Rgs.	Drg.	Ttl.
Knox	0	0	0	0	0	2	2
Ashland	10	115	5	0	7	19	26
Medina	1	0	1	0	5	5	10
Lorain	1	0	0	1	1	3	4
Wayne	3	30	2	0	4	5	9
Holmes	5	10	2	2	2	1	3
Coshocton	2	105	0	1	1	2	3
Cuyahoga	4	0	1	3	0	8	8
Guernsey	0	0	0	0	0	6	6
Portage	0	0	0	0	1	0	1
Stark	0	0	0	0	0	1	1
Fairfield	1	0	1	0	0	0	0
Richland	0	0	0	0	0	1	1
Carroll	0	0	0	0	0	1	1
Summitt	0	0	0	0	0	1	1
Lawrence	0	0	0	0	0	1	1
Gallia	0	0	0	0	5	2	7
Ttl. Mar.	27	260	12	7	26	58	84
Ttl. Feb.	23	128	5	14	11	58	69
Difference	4	132	7	7	15	0	15

COMPLETED WELLS
ASHLAND COUNTY

Mohican—Wm. Hare, Robinson Bros. 1. 15
Wm. Hare, Robinson Bros. 2 20
James McFadden, Robinson Bros. 1 .. 30
James McFadden, Robinson Bros. 2.. 20
Alman Austin, Robinson Bros. 1 30
Hanover—Samuel Hay, Logan Gas 1 ... dry
Sullivan—John J. Smith, Logan Gas 1.. dry
J. M. Slack, Hulse & Kundtz 1 ..... dry
Clear Creek—Eliza Batdorf, Faulkner & Co. 1 ..... dry
Hulda Shaw, Kemrow Co. 1 ..... dry

Wells completed	10
Production	115
Dry	5

MEDINA COUNTY

Liverpool—Ed J. Bauer, Ohio Fuel Gas 1 ..... dry

LORAIN COUNTY

Columbia—Carrie Boone, Ohio Fuel Gas 1 ..... gas

WAYNE COUNTY

Chester—Julia Iches, B. B. Cameron & Co. 1 ..... dry
Godfrey F. Martin, Logan Gas 1 ..... dry
Cannan—H. W. Gaul, Ohio Fuel Gas 1. 30

Wells completed	3
Production	30
Dry	2

HOLMES COUNTY

Monroe—F. C. Close, Empire Gas & Fuel 1 ..... dry
Richland—A. E. Harford, East Ohio Gas 1 ..... gas
M. V. Purdy, Kemrow Co. 1 ..... gas
John Mullet, Logan Gas 1 10
Salt Creek—Adam Karsch, Empire Gas & Fuel 1 ..... dry

Wells completed	5
Production	10
Dry	2
Gas	2

COSHOCTON COUNTY

Monroe—Peter Shellhorn, East Ohio Gas 1 ..... gas
Perry—E. R. and O. M. Vanwinkle, Preston Oil 4 105

Wells completed	2
Production	105
Gas	1

CUYAHOGA COUNTY

Olmstead, F. Bidderelph, Hulse & Kundtz 1 ..... dry
G. W. Wagner, John Arthur 2 ..... gas
Dover—A. E. Guage, John Arthur 1 ..... gas
J. A. Limpert, J. W. Cushing 1 ..... gas

Wells completed	4
Dry	1
Gas	3

FAIRFIELD COUNTY

Rush Creek—Griffis heirs, Ruff-Stewart Oil 2 ..... dry

LIMA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Drg.	Ttl.
Wood	3	39	0	1	3	1	4
Hancock	1	10	0	0	0	2	2
Allen	1	40	0	0	1	1	2
Auglaize	1	0	1	0	0	4	4
Mercer	0	0	0	0	0	4	4
Van Wert	0	0	0	0	0	1	1
Seneca	6	70	0	0	0	6	6
Lucas	0	0	0	0	0	1	1
Ottawa	2	45	0	0	0	0	0
Shelby	0	0	0	0	0	2	2
Hardin	0	0	0	0	1	0	1
Darke	1	10	0	0	0	1	1
Ttl. Mar.	11	214	1	1	5	23	27
Ttl. Feb.	17	63	3	7	4	24	28
Difference	6	151	2	6	1	3	1

WELLS COMPLETED
WOOD COUNTY

Montgomery—Mary E. Lovelace, Ohio Oil 1, 2, 3, 4, 5, 6 ..... abd
Fuhr-Villwock No. 1, Ohio Oil 18 .... abd
N. F. Fay, Ohio Oil 9 ..... abd
Emily Duran, Ohio Oil 5 ..... abd

H. Hill, Ohio Oil 25 ..... abd
Portage—Mrs. Guy Fisher, A. T. Carpenter 6, 7, 8 ..... abd
Perry—Rosendale-Dewitt, Ohio Oil 1, 2, 3, 4, 5, 6, 7, 8, 9 ..... abd
Rosendale-Dewitt, Ohio Oil 10, 11, 12 abd
Bressler heirs, W. H. Dennis & Co. 6 .. 1
Freedom—Fuhr-Vilwock No. 3, Ohio Oil 4 ..... a'sd
E. A. Moorman, Ohio Oil 5 ..... abd
S. E. Tilton, Ohio Oil 5 ..... abd
Wm. Heckman, Ohio Oil 3 ..... abd
C. Becker, Ohio Oil 26 ..... abd
E. A. Carman, Ohio Oil 8 ..... abd
Perrysburg—D. Lahy, W. F. Johnson 10 38
Center—A. Hanawalt, Arthur Hanawalt 1 ..... gas
Plain—G. T. Kidd, Ralph Bros., Inc., 3, 6 ..... abd

Wells completed 3
Production 39
Gas 1
Abandoned 34

HANCOCK COUNTY

Portage—Sam Brickman, Kirk, Moran & Co. 11 10

ALLEN COUNTY

Bath—J. M. Miller, H. F. Kelly & Co. 3 40
Ottawa—W. F. Baker, F. J. Sawmiller 1, 2 ..... abd
Marion—Jos. Loman, Ohio Oil 1, 2, 4, 5, 6, 7 ..... abd

Wells completed 1
Production 40
Abandoned 25

AUGLAIZE COUNTY

Moulton—Chas. Fritz, Wesley Sprague 8 dry

MERCER COUNTY

Butler—Jos. Abele, B. T. U. Oil & Gas Products 1, 2 ..... abd
B. Seifring, B. T. U. Oil & Gas Products 1, 2 ..... abd

Aabandoned 4

SENECA COUNTY

Liberty—Griffith-Leister, J. H. Murphy & Son 3 20
J. Kimmett, Murray Valley Oil & Gas 1 50

Wells completed 2
Production 70

OTTAWA COUNTY

Harris—Chas. Magsig, Gust Magsig & Son 16 5
Chas. Magsig, Gust Magsig & Son 17. 40
Chas. Magsig, Gust Magsig & Son 2... abd

Wells completed 2
Production 45
Abandoned 1

DARKE COUNTY

Mississinewa—Geo. Lawrence, J. G. Hoffman 2 10
Jacob Miller, M. P. Colt 1, 2 ..... abd

Wells completed 1
Production 10
Abandoned 2

INDIANA FIELDS

Summary of Field Operations

	Comp.	Prd.	Dry	Gas	Rgs.	Drg.	T'l
Wells	0	0	0	0	1	1	
Blackford	2	0	2	0	0	0	0
Jay	1	0	1	0	0	2	2
Adams	0	0	0	0	0	1	1
Grant	0	0	0	0	0	2	2
Huntington	0	0	0	0	0	1	1
Randolph	0	0	0	0	0	2	2
Gibson	1	23	0	0	0	5	5
Pike	1	0	1	0	0	1	1
Daviess	0	0	0	0	0	3	3
Sullivan	2	50	1	0	0	3	3
Vigo	2	60	0	0	0	2	2
Knox	0	0	0	0	0	1	1
Dubois	0	0	0	0	0	1	1
Benton	0	0	0	0	0	1	1
Fountain	0	0	0	0	0	1	1
Martin	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	1	1
Bartholomew	0	0	0	0	0	1	1
Miami	0	0	0	0	0	1	1
White	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	1	1
Lagrange	1	0	0	1	0	0	0
Wabash	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Henry	0	0	0	0	0	1	1
Madison	1	10	0	0	0	0	0
Harrison	2	0	0	2	0	0	0
Ttl. Mar.	13	143	5	2	0	36	36
Ttl. Feb.	18	185	6	7	5	42	53
Difference	5	42	1	4	5	12	17

WELLS COMPLETED
BLACKFORD COUNTY

Washington—Jones, Herman & Co. 1 .. dry
Girard, Swain & Co. 1 ..... dry

Wells completed 2
Dry 2

JAY COUNTY

Penn—Wm. Edmundson, Frank Edmundson 1 ..... dry

DELAWARE COUNTY

Delaware—D. Michaels, Athens Gas Corp. 1, 2, 3, 4, 5 ..... abd
C. M. McNally, Athens Gas Corp. 1, 2, 3, 4 ..... abd

Abandoned 9

GIBSON COUNTY

Washington—Collie Snyder, Wm. Bell & Co. 1 23

PIKE COUNTY

Clay—C. Waltz, A. E. Bement 6 ..... dry

SULLIVAN COUNTY

Fairbanks—Rebecca Hopewell, Ohio Oil 1 50
Hamilton—Don Maple, Billman & Co. 1 dry

Wells completed 2
Production 50
Dry 1

VIGO COUNTY

Prairie Creek—Wm. Riggs, Sloai Oil Corp. 5 20
Wm. Riggs, Sloai Oil Corp. 7 40

Wells completed 2
Production 60

LA GRANGE COUNTY

Clay—J. W. Cisler, Hunt & Co. 1 ..... gas

MADISON COUNTY

Summittville—Dodson, C. Thompson 1 . 10

HARRISON COUNTY

Boone—J. Decker, Ziegler & Co. 1 .... gas
Dogwood area, Mayhew & Co. 1 .... gas

Wells completed 2
Gas 2

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prd.	Dry	Gas	Rgs.	Drg.	T'l
Clark	2	20	1	0	0	3	3
Cumberland	1	2	0	0	0	1	1
Crawford	2	87	0	0	1	4	5
Lawrence	2	6	0	0	1	0	1
Wabash	1	0	0	1	0	2	2
Marshall	0	0	0	0	0	1	1
Macon	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Shelby	0	0	0	0	0	1	1
St. Clair	0	0	0	0	0	1	1
Ttl. Mar.	8	116	1	1	2	16	18
Ttl. Feb.	14	124	6	1	3	20	23
Difference	6	8	5	0	1	4	5

WELLS COMPLETED
CLARK COUNTY

Johnson—J. Connolly, W. C. McBride, Inc., 2 20
Westfield—R. C. Wilhoit, Mann & Huber 3 ..... dry

Wells completed 2
Production 20
Dry 1

CUMBERLAND COUNTY

Union—S. S. Yanaway, The Ohio Oil, 31 3

CRAWFORD COUNTY

Prairie—W. E. Evans, One Sixth Oil Co., 1 10
Southwest—Lloyd C. Mann, Dark Bend Oil, 1 77

Wells completed 2
Production 87

LAWRENCE COUNTY

Dennison—Olive Pond, Phipps, Blosser & Co., 1 5
Sarah A. Grayson, The Ohio Oil, 4..... 1

Wells completed 2
Production 6

WABASH COUNTY

Wabash—C. Keyser, Wirebach & Co., 7 gas
Biehl hrs., T. L. Andrews, 6..... abd
Friendsville—B. Liddle, Henningberg & Co., 1 ..... abd

Wells completed 1
Gas 1
Abandoned 2

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prd.	Dry	Gas	Rgs.	Drg.	T'l
Muskegon	4	0	3	1	5	12	17
Midland	1	30	0	0	0	0	0
Alpena	1	0	1	0	0	0	0
Saginaw	0	0	0	0	0	2	2
Gratiot	0	0	0	0	0	1	1
Shiawassee	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	1	1
Charlevoix	0	0	0	0	0	1	1
Roscommons	0	0	0	0	0	1	1
Sanilac	0	0	0	0	0	1	1
Isabelle	0	0	0	0	1	0	1
Monroe	0	0	0	0	0	1	1
Ttl. Mar.	6	30	4	1	6	21	27
Ttl. Feb.	1	170	0	0	8	16	24
Difference	5	140	4	1	2	5	1

COMPLETED WELLS
MUSKEGON COUNTY

Muskegon—Margaret Figge, Lima Oil Corp. 1 ..... gas
C. W. Smith, Bowers & Keefe 1 .. dry
Jos. Cihak, Johnson Oil & Refg. 1.... dry
Marquardt, West Michigan Oil Synd., 1 dry

Wells completed 4
Dry 3
Gas 1

MIDLAND COUNTY

Greendale—Rayner-Root, The Pure Oil 1 30

ALPENA COUNTY

Alpena—F. M. Potter, Bradley & Son, 1 dry

KENTUCKY-TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs	Drg.	T'l.
Warren	2	7	0	0	0	6	6
Allen	4	0	4	0	0	7	7
Barren	17	821	1	0	0	21	21
Ohio	37	1,501	8	0	0	47	47
Daviess	16	815	7	0	5	37	42
McLean	1	0	1	0	0	5	5
Webster	0	0	0	0	0	1	1
Hancock	0	0	0	0	0	4	4
Henderson-Union	0	0	0	0	0	4	4
Caldwell	1	0	0	1	0	0	0
Muhlenburg	0	0	0	0	0	1	1
Breckenridge	0	0	0	0	0	1	1
Hopkins	0	0	0	0	0	1	1
Butler	0	0	0	0	0	3	3
Cumberland-Monroe	0	0	0	0	0	2	2
Clinton	0	0	0	0	0	1	1
Wayne	4	7	2	0	0	4	4
Estill	4	22	1	0	0	2	2
Lee-Owsley	2	0	2	0	0	1	1
Powell	1	5	0	0	0	0	0
Wolfe	4	20	1	0	0	4	4
Johnson-Magoffin	4	32	0	0	1	2	2
Floyd-Knott	1	0	0	1	0	3	3
Knox	0	0	0	0	0	4	4
Clay	1	0	0	1	0	0	0
Ttl. Ky.	101	3,541	37	3	6	164	170
Ttl. Tnn.	9	78	4	1	0	15	15
Ttl. Miss.	0	0	0	0	10	20	30
Ttl. Ala.	0	0	0	0	0	7	7
Ttl. Fla.	0	0	0	0	0	13	13
Ttl. Mar.	110	3,619	31	4	16	219	235
Ttl. Feb.	96	4,775	29	5	17	226	253
Differe'ce	14	1,156	2	1	1	17	18

WELLS COMPLETED
WARREN COUNTY

Bowling Green—L. B. Graham, W. Wareham 3 6

Clarence Miller, Petroleum Exploration 12 1

Wells completed 2
Production 7

ALLEN COUNTY

Scottsville—W. F. Johnson, J. L. Finch & Co. 19 ..... dry
Wm. French, Logan & Johnson 2 .... dry
J. Bradley, Reher & Co. 1 ..... dry
Willoughby, Dye & Co. 1 ..... dry

Wells completed 4
Dry 4

BARREN COUNTY

Glasgow—Casey Jones, Sampson Oil 7 .. 100
Casey Jones, Sampson Oil 8 100
Casey Jones, Sampson Oil 9 100
Casey Jones, Sampson Oil 10 100
Casey Jones, Sampson Oil 11 100
J. W. Pace, Wood Oil 5 75
J. W. Pace, Wood Oil 6 80
J. W. Pace, Wood Oil 7 20
Pedigo, White & Sandals 1 15
Pedigo, White & Sandals 2 50
Nichols, White & Sandals 19 15
Wallace Page, Hunt & Co. 1 ..... dry
Walt Browning, Hunt & Co. 6 15
Nichols, Hunt & Co. 3 1
W. S. Morton, Esslinger Oil 4 20
Glass, Esslinger Oil 2 20
Glass, Esslinger Oil 3 20

Wells completed 17
Production 831
Dry 1

OHIO COUNTY

Hartford—V. R. Ferguson, Wood Oil 2. 25
F. M. Moseley, Wood Oil 1 50
Mary J. Elmore, Wood Oil 24 50
J. J. Keown, Ohio Oil 1 ..... dry
J. C. Ellis, Ohio Oil 13 80
Ida Rhodes, Ohio Oil 2 10
Ada Kelly, White Plains Oil & Gas 3 25
C. R. Keith, James C. Ellis 2 35
Jane Daniels, James C. Ellis 4 100
Jane Daniels, James C. Ellis 5 50
Cody Hoover, James C. Ellis 2 50
Cody Hoover, James C. Ellis 3 50
Cody Hoover, James C. Ellis 4 ..... dry
W. S. Ambrose, Rex-Pyramid Oil 11.. 75
W. S. Am rose, Rex-Pyramid Oil 12.. 30
Gilbert Jolly, Trico Oil & Gas 3 30
Ollie Ezell, Young & Lee 3 75
L. Trodgen, Pampas Oil 4 ..... dry
Fred Weir, Leeper Oil 2 50
Fred Weir, Leeper Oil 1 15
Latney Rhodes, S. H. Russell & Co. 3 30
Bob Hamilton, Cumberland Petroleum 6 150
Walter Medcalf, J. S. Lyle & Co. 1 .. dry
Cora Wells, Mecca Oil 11 125
E. G. Owen, Buckner & Co. 3 25
Eliza Jewell, Medley Bros. 1 ..... dry
Bartlett heirs, Creek Drilling 8 ..... dry
Bartlett heirs, Creek Drilling 10 200
Don Mitchell, Garrison & Evans 2 .... dry
Cora Wells, Mecca Oil 12 100
B. M. Coomes, Hartford Dredging 1.. 75
J. Bellamay, G. H. Rice & Co. 1 20
Ves Haynes, J. M. Meredith 1 ..... dry
Holbrook-Wells, W. H. Ford 1 ..... dry
Joe Bellamay, Oliver Jenkins & Co. 2 18
W. B. Howard, J. T. Hare & Son 2 8
Bob Hamilton, Daly & Lowman 2 250

Wells completed 37
Production 1,801
Dry 8

DAVIESS COUNTY

Owensboro—W. G. Hayden, L. C. Young & Co. 2 60
W. G. Hayden, L. C. Young & Co. 3 .. 150
Jim Brown, Miller & Damron 2 200
C. M. Field, Weideman Oil 1 200
Trodgen, Atlantic Ref. & Co. 1 75
John H. Roby, Leeper Oil 8 50
Len Sparks, R. P. Rowe 1 30
Mattingley heirs, Conrad Kipp & Co. 2 25
Mattingley heirs, Conrad Kipp & Co. 3 25
Dell Salmon, Cumberland Pet. 1 .... dry
Flora Rice, Engle & Co. 1 ..... dry
Elmer Higdon, Morrison & Roeder 1. dry
Tom Stevens, Jolly, Howard & Co. 1 dry
Rex O'Flynn, Miller & Damron 1 ... dry
Louis Igleheart, Ohio Oil Co. 7 .... dry
Nace Mattingley, Pearl Stevens 1 ... dry

Wells completed 16
Production 815
Dry 7

McLEAN COUNTY

Calhoun—Len Ford, Dimmick Bros. 1.. dry

CALDWELL COUNTY

Princeton—Princeton Oil & Gas 1 .... gas

WAYNE COUNTY

District 5—J. F. Gregory, J. C. Blair Oil 3 5
E. Q. Gregory, Davey Oil 8 2
District 13—Thos. Bell, E. Porter & Co. 1 ..... dry
Owen Rector, Marsh & Bowen 1 .... dry

Wells completed 4
Production 7
Dry 2

ESTILL COUNTY

District 7—Geo. Reed heirs, McEldowney, Bowser & Co. 4 20
District 8—J. D. Alexander, Superior Oil Corp. 35 ..... dry
Thomas Henderson, Superior Oil Corp. 23 1
Kate Sawyer, Brenner, Adams & Co. 12 1

Wells completed 4
Production 22
Dry 1

LEE-OWSLEY COUNTIES

District 18—Sarah B. Akers, Frailey, French & Co. 2 ..... dry
District 35—Sarah Warner, Troy Abney & Co. 1 ..... dry

Wells completed 2
Dry 2

POWELL COUNTY

District 15—Hall-Townsend, James McCoy Oil 1 5

WOLFE COUNTY

District 20—Bush-Spencer, Brenner, Adams & Co. 1 7
John P. Bush, Amp Burnett 1 7
Dewey Chapman, M. B. French & Co. 1 6
Bud Spencer, R. L. & N. M. Spencer 1 dry

Wells completed 4
Production 20
Dry 1

JOHNSON-MAGOFFIN COUNTIES

District 30—Forrest Colvin, S. T. S. Development 1 2
Forest Colvin, S. T. S. Development 2 2
Sallie Colvin, S. T. S. Development 1. 2
Dan Davis, S. T. S. Development 1.. 2
District 31—B. F. Whitt No. 2, Hupp, Duff & Co. 6 20
J. J. and M. Pace, Hupp, Duff & Co. 2 5

Wells completed 6
Production 33

FLOYD-KNOTT COUNTIES

District 21—J. N. Allen, Ivyton Oil & Gas 1 ..... gas

CLAY COUNTY

Manchester—Alex Milton, Petroleum Exploration 1 ..... gas

TENNESSEE
CLAY COUNTY

Celina—Blythe, Chas. Gartland 1 ..... dry
Tidwell heirs, Clark & Bovard 2 25
Barlow Langford, Cumberland Valley Oil 1 10
Bill Pennington, Ohio Oil 3 18
Sanford Stamps, Reesor & Edwards 1 25

Wells completed 5
Production 78
Dry 1

MACON COUNTY

Northeast Boiling Springs, Unknown 1. dry

COFFEE COUNTY

Belmont—Dr. C. E. Price, Tenn-Ky. Oil & Gas 1 ..... dry

PUTNAM COUNTY

Sinking Creek—J. A. Drake & Co. 1 ... gas
Buffalo Creek—Tenn.-Alabama Oil & Gas 1 ..... dry

Wells completed 2
Dry 1
Gas 1

DIVIDEND NOTICE
Imperial Royalties Company

Will pay monthly dividend of 1½% to Preferred Shareholders on April 30. This is Dividend No. 31 and makes a total of 187% paid to shareholders.

E. S. HORN,
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TEXAS OIL MAPS
County and District
Catalog on Application
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for February

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	4,147,000	143,000
Gulf P. L. Co.	1,147,924	39,584
Texas P. L. Co.	1,162,360	40,081
Magnolia Pet. Co.	2,037,671	70,265
Empire P. L. Co.	812,524	28,018
Cosden P. L. Co.	945,023	32,587
Shell P. L. Corp.	2,242,983	77,344
Sinclair P. L. Co.	2,320,000	80,000
Oklahoma P. L. Co.	2,866,758	98,854
Other lines	4,872,000	168,000
Total February	22,554,253	777,733
Total January	24,485,369	789,850
Difference	1,931,116	12,117

Shipments

Prairie P. L. Co.†	5,006,573	172,640
Gulf Pipe Line Co.	1,251,234	43,146
Texas Pipe Line Co.	1,079,832	37,236
Magnolia Pet. Co.	1,874,678	64,644
Empire Pipe Line Co.	884,780	30,510
Shell P. L. Corp.	2,232,677	76,988
Cosden P. L. Co.	742,003	25,621
Sinclair P. L. Co.†	2,508,161	86,488
Oklahoma P. L. Co.	2,741,401	94,531
Other lines	5,220,000	180,000
Total February	23,542,339	811,003
Total January	25,427,215	820,233
Difference	1,884,876	9,230

Stocks

Prairie Oil & Gas Co.*	33,500,000
Prairie Pipe Line Co.*	2,500,000
Gulf Pipe Line and Gypsy Oil Co.	10,219,658
The Texas Company	6,581,336
Magnolia Petroleum Co.	7,598,406
Empire Pipe Line Co.	4,262,149
Cosden Pipe Line Co.	3,633,367
Sinclair Crude Oil Pur Co.*	20,000,000
Oklahoma P. L. Co.	3,055,309
Carter Oil Co.	14,774,244
Other lines*	11,810,000
Total February	117,934,469
Total January	116,976,705
Difference	957,764

*Estimated. †Prairie Pipe Line shipments include Texas crude and Sinclair Pipe Line shipments include Wyoming and Texas crude.

Note—Stocks do not include approximately 7,500,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 1,400,000 bbls. of Texas Panhandle crude in storage in Oklahoma and Kansas.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan.'28	Feb.'28
Nat. Transit	150,803.87	150,792.66
S. W. Pa. P. L.	86,787.96	86,300.70
Eureka P. L.	361,589.34	358,514.02
Buckeye P. L. (Macksburg)	342,901.40	336,290.14
Buckeye P. L. (Cleveland)	10,402.53	10,650.78
Buckeye P. L. (Lima, etc.)	102,753.20	105,503.36
Indiana P. L.	5,916.95	6,990.90
Cumberland P. L.	234,870.56	216,312.65
N. Y. Transit	21,317.31	20,961.60
Tidewater P. L.	181,415.82	179,353.35
Pure Oil	66,257.80	64,170.62
Emery P. L.	52,122.24	54,952.72
Paragon Dev.	21,188.15	46,564.77
Stoll Oil Ref.	11,710.30	12,100.29
Total	1,640,037.53	1,653,059.46
Daily avg.	52,904.44	57,002.05

Note—Indian Refining Co. also reported other receipts of 306,927.39 bbls. Paragon Refining Co. had other receipts of 171,374.16 bbls. Paragon Development had other receipts of 1,343.02 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Jan.'28	Feb.'28
Nat. Transit	469,229.36	550,710.53
S. W. Pa. P. L.	259,329.67	300,851.13
Eureka P. L.	187,006.50	92,771.88
Buckeye P. L. (Macksburg)	140,151.88	134,030.96
Buckeye P. L. (Cleveland)	1,221.53	978.44
Buckeye P. L. (Lima, etc.)	951,977.88	1,391,510.04
Indiana P. L.	1,170,000.62	1,160,002.87
Cumberland P. L.	118,509.61	127,571.67
N. Y. Transit	128,724.19	149,006.60
Northern P. L.	185,009.92	163,752.84
Tidewater P. L.	153,762.94	143,951.23
Pure Oil	68,558.07	63,494.40
Emery P. L.	55,982.54	54,814.47
Paragon Ref.	152,235.57	167,179.39
Indian Ref.	347,862.25	307,199.80
Paragon Dev.	20,658.67	45,839.18
Total	4,540,221.80	4,853,665.43
Daily av.	146,465.22	167,367.77

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of January and February:

	Jan.'28	Feb.'28
Nat. Transit	1,149,108.83	1,123,231.06
S. W. Pa. P. L.	675,945.25	756,181.52
Eureka P. L.	1,716,048.80	1,782,756.00
Buckeye P. L. (Macksburg)	426,940.19	424,216.38
Buckeye P. L. (Cleveland)	42,161.59	55,006.63
Buckeye P. L. (Lima, etc.)	5,122,654.61	4,763,213.91
Indiana P. L.	637,623.18	695,067.72
Cumberland P. L.	627,679.02	650,094.40
Southern P. L.	378,610.99	383,995.42
N. Y. Transit	752,445.09	808,998.76
Northern P. L.	547,050.82	537,565.25
Pure Oil	59,565.11	60,918.70
Emery P. L.	7,313.38	7,916.48
Paragon Ref.	16,869.68	20,811.72
Indian Ref.	99,260.00	106,462.76
Paragon Dev.	7,433.22	10,031.11
Total	12,276,709.76	12,180,418.82
Decrease	62,587.49	96,290.94

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of January and February, showing the gross stocks of the above fields:

	Jan.'28	Feb.'28
Pennsylvania	3,823,756.32	3,821,514.46
Lima	1,202,935.45	762,432.37
Kentucky	996,124.21	1,049,761.11
Mid-Continent	6,186,868.36	6,460,176.14
Illinois	67,025.42	86,534.76
Total	12,276,709.76	12,180,418.82

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
Jan.	56,831	55,630	56,209	52,904
Feb.	60,606	60,394	61,298	57,002
Mar.	60,575	61,644	63,247	.....
April	63,062	63,019	60,337	.....
May	59,217	60,830	60,284	.....
June	61,270	61,131	62,757	.....
July	62,639	63,206	58,674	.....
Aug.	59,686	61,815	60,870	.....
Sept.	62,510	64,639	60,285	.....
Oct.	145,288	161,132	147,036	.....
Nov.	59,350	61,774	57,275	.....
Dec.	57,974	58,755	63,089	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
Jan.	157,889	156,056	141,227	146,465
Feb.	160,863	159,488	138,534	167,368
Mar.	154,591	160,239	133,777	.....
April	161,429	152,371	140,227	.....
May	146,995	160,998	144,594	.....
June	149,467	160,267	149,772	.....
July	161,338	160,045	151,850	.....
Aug.	161,730	161,929	158,653	.....
Sept.	156,719	158,915	144,213	.....
Oct.	145,388	161,132	147,036	.....
Nov.	143,582	152,602	150,975	.....
Dec.	150,162	136,428	144,504	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
Jan.	9,859,179	9,718,008	12,276,71[illegible]
Feb.	9,879,364	10,119,162	12,180,41[illegible]
Mar.	9,438,292	10,794,044	.....
April	9,805,851	11,112,295	.....
May	9,531,757	11,359,381	.....
June	9,585,904	11,493,673	.....
July	9,734,687	11,458,128	.....
Aug.	9,058,947	11,989,115	.....
Sept.	9,436,732	12,212,716	.....
Oct.	9,269,806	12,047,661	.....
Nov.	9,257,067	11,939,740	.....
Dec.	9,454,512	12,340,297	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and the counted in the stocks and averages reported above:

1927—	Runs	Shipments	Stocks
Jan.	2,641.54	1,470.42	14,274.8[illegible]
Feb.	2,764.30	1,082.82	15,956.3[illegible]
Mar.	2,587.20	1,878.56	16,664.9[illegible]
April	2,834.23	1,512.65	17,986.5[illegible]
May	2,708.40	539.39	20,215.7[illegible]
June	2,946.29	664.40	22,497.6[illegible]
July	3,153.99	1,276.61	24,374.3[illegible]
Aug.	3,057.89	2,713.11	18,718.1[illegible]
Sept.	3,209.56	2,656.48	19,272.2[illegible]
Oct.	2,801.32	1,226.90	20,946.3[illegible]
Nov.	2,746.50	2,220.53	21,472.5[illegible]
Dec.	2,779.36	1,893.69	22,358.7[illegible]
1928—			
Jan.	1,886.06	2,424.79	21,819.9[illegible]

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, March 1	2,235,806.6[illegible]
Runs from wells	546,734.0[illegible]
Other receipts	479,730.6[illegible]
Regular deliveries	397,250.2[illegible]
Other deliveries	401,676.5[illegible]

The amount of Illinois oil run by the Tidewater Pipe Co. in February was 26,885.77 bbls., and deliveries were 52,867.58 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1927—	Runs	Deliveries
February	595,821.16	476,960.7[illegible]
March	727,593.94	554,947.42
April	598,225.97	444,818.4[illegible]
May	728,769.40	543,192.0[illegible]
June	640,975.85	532,217.7[illegible]
July	613,961.30	484,902.53
August	651,276.40	529,331.3[illegible]
September	619,589.49	433,212.4[illegible]
October	601,099.25	408,287.5[illegible]
November	605,621.14	416,185.46
December	577,321.25	397,176.9[illegible]
1928—		
January	561,759.57	434,147.8[illegible]
February	573,619.78	450,217.8[illegible]

Tidewater Pipe Co., Ltd., also delivered in February, 251,024.23 bbls. of Oklahoma oil

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	20,936	4,355	47,968	14,129	14,387	101,774	.....	.....	.....	.....	.....	101,774
November	9,433	2,833	33,033	16,166	4,933	55,400	.....	.....	.....	.....	.....	55,400
December	10,742	2,033	36,266	24,287	7,065	75,484	.....	.....	.....	.....	3,613	79,097
January	15,287	2,032	31,032	7,452	9,710	65,513	.....	.....	.....	.....	.....	65,513
February	3,538	.....	31,930	19,734	10,330	65,532	.....	.....	.....	.....	.....	65,532

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	26,064	13,097	79,355	2,838	34,097	156,451	1,618	19,333	806	1,871	23,612	180,064
November	35,333	8,033	84,533	30,100	27,067	184,967	4,000	26,500	2,000	1,667	34,167	219,132
December	39,968	2,387	78,968	19,097	29,836	170,256	2,530	15,356	339	1,236	20,000	190,256
January	15,226	4,323	107,645	27,871	39,774	194,839	5,000	32,516	.....	1,355	38,871	233,710
February	6,796	5,175	108,226	29,532	28,807	178,536	7,331	22,114	6,556	2,329	38,329	217,865

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (REVISED)

(In Barrels)

1927—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
March:	Month	19,836,724	22,480,921	18,179,491	3,675,142	3,852,920	2,086,108	2,684,734	3,225,800	76,131,831
	Daily average	639,862	725,191	586,435	118,553	124,220	67,294	86,604	105,100	3,455,866
April:	Month	19,493,825	22,208,130	17,755,920	3,516,930	3,378,240	2,039,550	2,671,830	3,474,000	74,538,425
	Daily average	649,794	740,271	591,864	117,231	112,608	67,985	89,061	115,800	3,484,614
May:	Month	19,506,054	23,258,463	19,489,607	3,704,314	3,493,669	1,984,651	2,682,151	3,467,000	77,585,909
	Daily average	629,228	750,273	628,697	119,494	112,699	64,021	86,521	111,839	3,502,771
June:	Month	19,181,442	22,830,330	18,360,450	3,427,580	3,365,760	1,920,180	2,634,570	3,330,000	75,060,312
	Daily average	639,381	761,011	612,015	114,586	112,192	64,006	87,819	111,000	3,631,139
July:	Month	19,319,021	26,532,546	17,580,348	3,454,082	3,406,683	2,311,019	2,678,679	3,362,300	78,435,678
	Daily average	623,194	855,566	567,108	111,422	109,893	74,549	86,409	108,484	3,536,635
August:	Month	19,379,131	26,285,350	17,682,927	3,442,340	3,342,600	2,281,202	2,489,021	3,571,000	78,221,471
	Daily average	621,907	847,850	570,417	111,040	104,600	71,974	80,291	115,194	3,523,373
September:	Month	19,064,500	24,111,660	18,322,800	3,341,340	3,033,570	2,027,670	2,268,620	3,465,000	75,633,970
	Daily average	635,483	803,722	610,760	111,378	101,099	67,589	75,621	111,774	3,521,132
October:	Month	19,448,893	24,247,053	19,200,098	3,509,169	3,117,298	2,055,889	2,258,885	3,400,000	77,240,285
	Daily average	627,384	782,163	619,358	113,199	100,555	66,416	72,867	109,677	3,491,622
November:	Month	18,516,467	23,083,380	18,628,290	3,313,650	2,906,760	1,956,960	2,234,720	3,302,500	73,942,737
	Daily average	617,216	769,446	620,943	110,455	96,892	65,232	74,491	110,083	3,464,758
December:	Month	18,938,825	22,208,417	19,840,000	3,427,174	2,962,760	1,927,148	2,400,578	3,219,900	74,324,799
	Daily average	610,930	716,400	640,000	110,554	95,576	62,166	77,438	103,868	3,416,926
1928—										
January:	Month	19,028,228	21,146,619	20,023,156	3,319,225	2,791,891	1,839,106	2,429,375	3,132,000	73,710,700
	Daily average	613,814	682,149	645,876	107,075	90,061	59,326	78,359	101,000	3,377,765
February:	Month	18,038,459	19,483,157	19,682,889	3,079,827	2,571,575	1,759,606	2,230,910	3,016,000	69,862,443
	Daily average	632,016	671,833	678,718	106,203	88,675	60,676	76,918	104,000	2,409,039
	Total 12 months	229,650,567	277,864,026	224,745,985	41,230,834	38,134,116	24,141,489	29,664,083	40,077,500	905,488,600
	Daily average	637,461	759,191	614,060	112,635	104,188	65,960	81,049	109,501	2,474,013

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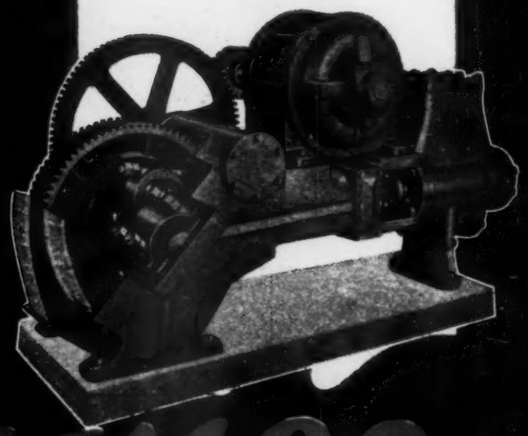

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